# MAPPING AUDIT TECHNICAL MEMO

Review of the Regional Official Plan

Natural Heritage System Policies + Mapping

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# SECTION 1.0 Introduction

The Regional Municipality of Halton (Halton) has retained Gladki Planning Associates, in association with North-South Environmental Inc. and Wood Group, to assist in Phases 2 and 3 of the *Regional Official Plan* Review (ROPR) in accordance with the legislative five-year requirement under Section 26 of the *Planning Act*. This project addresses the Natural Heritage System Policies and Mapping theme. Other themes (e.g., agricultural system) are being addressed as part of other initiatives. Phase 2 generally constitutes the technical analysis of the policies and mapping, while Phase 3 focuses on the development of policy refinements. The purpose of this project is to strengthen the long-term viability of Halton's natural heritage and water resources, as well as explore opportunities to update existing policies and mapping, and introduce new land use policies where appropriate.

The *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project provides an opportunity to examine policies and mapping that may need to be updated, enhanced, and refined based on evolving land use trends, the 2020 *Provincial Policy Statement*, the applicable 2017 Provincial Plans (Greenbelt Plan and Niagara Escarpment Plan) and Growth Plan 2019 and the recently released Provincial Natural Heritage System Mapping Technical Report. Halton's current Natural Heritage System as illustrated and described in the Regional Official Plan was based on the best information available at the time (2009) using sound ecological principles. It is noted that at the time of writing, the Province has proposed an amendment to the Growth Plan (2019) which may eventually affect options provided in this Memo; however these amendments are not proposed as part of this memo. Amendments to the Growth Plan 2019 are discussed in the Policy Audit Memo and Natural Heritage Discussion Paper. Phase 2 of the *Review of the Regional Official Plan Natural Heritage System Policies + Mapping* project provides detailed policy considerations for the Regional Official Plan, utilizing a series of four Technical Memos and a Natural Heritage System Report which provide analysis to inform the policy refinements in Phase 3.

This current report is the *Mapping Audit Technical Memo*, (Mapping Memo) and responds to Section 2.3.4 of the Terms of Reference (Appendix 1). The Mapping Memo has two main components:

1. it evaluates and analyzes a number of specific issues identified by the Region (e.g., updating mapping in the North Aldershot Area, reviewing the role of Centres for Biodiversity, etc.) that have repercussions for mapping Halton's NHS and provides options for updating the Region's mapping; and
2. it includes updates to GIS shapefiles that comprise the Halton NHS.

The updates are being undertaken in a separate stream of work and although the process is described in this Mapping Memo, the shapefiles and metadata are being provided as a separate deliverable when completed. Considerations that involve additional mapping arising from

recommendations in this Mapping Memo will be carried forward into the Natural Heritage Discussion Paper (which is the summary paper for Phase 2) including the creation of draft NHS mapping and will go through a consultation process in Phase 3 of this project. Changes in mapping from any of these considerations and through consultation will be undertaken by the Region later in the Phase 3 process.

The Mapping and Policy Technical Memos are inter-related and to gain a fuller understanding of issues both reports should be read. It is inevitable that some reference to policy occurs in this Mapping Technical Memo, but the complete discussion of policy provided in the Policy Technical Memo is not repeated here.

As mapping information for the Water Resource System (WRS) does not currently exist within Halton Region, a review of available mapping information and strategies to advance the WRS Mapping have been addressed in Section 5.0 of this Mapping Memo. This includes the context for WRS mapping, the methodology applied as part of this review, the key findings from the mapping information audit, and considerations to advance the Region's WRS mapping.

Note Regarding this Memo

This Mapping Memo provides options to the Region based only on a natural heritage and/or water resource perspective and they need to be examined and evaluated from a wider perspective that embraces agriculture, future growth, servicing and other aspects of planning in order to provide balance to the eventual updates to the mapping in the Region's Official Plan (ROP). With respect to natural heritage, this is especially true when evaluating options regarding additions and deletions to the Region's Natural Heritage System, as the options provided herein recommendations are based only on natural heritage parameters.

# SECTION 2.0 Considerations for Official Plan Mapping

## 2.1 Considerations for Mapping in the Regional Official Plan

Regional Scale: The natural heritage mapping on Maps 1 and 1G in the ROP encompass the entirety of Halton Region. Thus in terms of accuracy and interpretation, the regional mapping falls between mapping done at larger scales such as a secondary plan or site-specific mapping and the small scale mapping undertaken by the Province. It is important not to expect mapping in the ROP to reflect the accuracy of mapping done at large scales. In recognition of the scale of mapping, the ROP anticipates that it will need to be refined to increase accuracy as site-specific work is undertaken and this is facilitated through sections 116.1 and118.2 of the ROP.

Accuracy of Available Spatial Data: There is a risk that the mapping in the ROP, when made available digitally, will be inappropriately applied or interpreted, mainly owing to the high precision afforded by Geographic Information System's (GIS). For example, the limits of

woodlands that were interpreted from aerial photographs will generally be sufficiently accurate for the purpose of Regional scale mapping. However, when the files are manipulated with mapping software, they can be magnified to very large scales, which provides a false sense of precision and invariably makes the data look inaccurate. Ideally, the NHS mapping should only be viewed at a scale that is consistent with the scale at which it was originally collected. Additionally, metadata should be consulted so that the user can gain an understanding of the data and its limitations.

Age of Data: Data used to assemble maps in the ROP have been collected at various points in time. Because natural features may change over time (e.g., removed or expanded by natural or man-made events), the mapping may not accurately reflect current conditions. Also, various data layers used to illustrate a single area (e.g., a natural feature that comprises both a wetland layer and a woodland layer) may be created at different times and thus may not convey a consistent picture of features at a single point in time.

Completeness of Mapping: There are some components of the Regional NHS that cannot be mapped either because there are no data available to map them, for example Significant Wildlife Habitat, or the data are confidential, and/or are being updated and refined so frequently that mapping it would be quickly out of date, for example the habitat of Endangered or Threatened species. Even with components that are relatively well understood, for example wetlands and woodlands, there is recognition that the mapping is not complete and that there are bona fide wetland features that exist that are not mapped. This issue was addressed to some extent in the past for some components through using "proxy" data, for example, there is no complete layer for "fish habitat", however, since almost all permanent surface water features are potential fish habitat, it can be used to reasonably represent fish habitat. However, the extent to which proxy data represent the true extent of a feature varies, which leads to inaccuracies in mapping. Because of this, it is important that the ROP retain policies such as 118(1.1) and 139.12 which facilitate the refinement of features.

Consistency of Feature Boundaries resulting from Multiple Data Sources: The Region acquires the best available data for mapping in the ROP and the various layers that are utilized come from several sources (e.g., Ministry of Natural Resources and Forestry, several Conservation Authorities, etc.). Because different spatial layers may depict the same feature for different reasons (e.g., a feature could be an Area of Natural or Scientific Interest (ANSI), wetland, and woodland) and may have been created based on aerial photographs from different years or at different scales, their boundaries may often not completely align, even though they are illustrating the same feature. This is generally owing to minor differences in the source data. When mapped with the precision of GIS mapping software, this creates variations as the lines depicting boundaries of the same feature often weave in and out of each other. When it does this it creates numerous (often thousands), very small polygons, often referred to as "slivers". Apart from the problems this causes when viewing the data at inappropriately large scales, it

distorts descriptive statistics such as the number of polygons comprising wetlands, woodlands or other features, as each sliver comprises a single polygon.

Summary: None of the considerations above detract from the utility and appropriateness of the mapping provided in the ROP. The mapping is intended to illustrate the general extent of Key Features and other components that comprise the Halton NHS, based on the best available data, and it does that extremely well. However, the characteristics and limitations of the mapping need to be understood to enable appropriate interpretation. It may create more of a problem when mapping is used for the review of planning applications, or when explaining mapping in response to inquiries as part of customer service, as the data are often reviewed at a larger scale for these exercises. To help facilitate proper use of ROP mapping, the Region should consider:

1. Retaining policies such as 116.1 and 118.(2)c that allow refinements to the NHS;.
2. Retaining sections 118(1.1) and 139.12 to facilitate the inclusion of features that are currently unmapped; and
3. Including a qualifier on all maps to indicate that the mapping is based on the best available sources, at a variety of scales, is for illustrative purposes only and that the Region's Natural Heritage System is also defined through the policies.

# SECTION 3.0 Mapping Analysis

## 3.1 Review of Growth Plan Natural Heritage System

### 3.1.1 Summary of the "Provincial Natural Heritage System"

The province has created a "Regional Natural Heritage System" that consists of a Growth Plan NHS for the Greater Golden Horseshoe and the Greenbelt Plan Area NHS (see Figure 19, page 42 in OMNRF 2018). The NHS for the Greenbelt Area is in turn composed of the Oak Ridges Moraine NHS, the Natural Heritage System in the Protected Countryside of the Greenbelt Plan and parts of the Niagara Escarpment Plan Area that appears to include the Escarpment Natural Area and Escarpment Protection Area designations in the Niagara Escarpment Plan (note the designations from the Niagara Escarpment Plan that are included in Figure 19 are not specially identified in OMNRF 2018). The Province has provided a "Technical Report on Criteria, Rationale and Methods for the Regional Natural Heritage System for the Growth Plan for the Greater Golden Horseshoe" (OMNRF 2018) (hereafter referred to as the "Technical Report"), however it only applies to the Growth Plan area, i.e., it does not address the methodology for the Greenbelt Plan NHS (and by extension the ORM NHS nor NEP designations).

There is inconsistency in the terminology used to describe the various natural heritage systems which needs clarification. The Province refers to "their" Regional Natural Heritage System for the Growth Plan for the Greater Golden Horseshoe as a "regional scale" natural heritage system, where the region is the Greater Golden Horseshoe. However, the PPS (s. 2.2.3) requires

municipalities (including the Regional Municipalities) to develop natural heritage systems which by definition are also "regional scale" natural heritage systems. Thus, there are "regional natural heritage systems" at two very different scales. Because of this there is a need to be careful in how and when "Regional" is referred to in order to avoid confusion between the Province's NHS for the Growth Plan in the GGH and Halton's Natural Heritage Systems. To add to the potential confusion, Halton's ROP refers to both the "Natural Heritage System" (s. 113 of the ROP) and "Regional Natural Heritage System" (RNHS) (s. 115 of the ROP), which are defined differently; the Natural Heritage System being composed of the Greenbelt Natural Heritage System and the Regional Natural Heritage System. The policy structure that defines the Halton NHS is more fully described in section 2.0 in the Policy Technical Memo.

For this Mapping Audit report we propose the following terminology:

- The "Regional Natural Heritage System for the Growth Plan for the Greater Golden Horseshoe" we refer to as the "Provincial NHS";
- Greenbelt Plan NHS is used as it is defined in the Greenbelt Plan;
- "Growth Plan NHS" is used to describe that portion of the Provincial NHS that is outside the Greenbelt Plan NHS (and thus the Niagara Escarpment Plan) and is the NHS addressed in the Province's Technical Report;
- The Halton Natural Heritage System (HNHS) refers to the Region of Halton's NHS as defined in s. 113 of the ROP (i.e. comprised of the RNHS and GBNHS Overlay, see two following points);
- Regional Natural Heritage System (RNHS) refers to the part of the Halton Natural Heritage System defined in s. 115 of the ROP; and
- The Greenbelt Plan NHS Overlay (GBNHS Overlay) is also part of Halton's NHS and is defined in s. 113 of the ROP.

The Growth Plan NHS was a modelling exercise and is described in the Technical Report as "an automated process". It was developed based on a set of principles and criteria derived from the literature. Decisions on the extent of the NHS based on professional judgement were excluded in an attempt to make the exercise "evidence-based and repeatable". The actual algorithms used by the Province are not available (as far as we can ascertain) thus it is not possible to actually determine with certainty what is defining or "driving" the location of a particular line or polygon. One possible consequence of this approach is that the algorithms that generate the Growth Plan NHS may include areas that were not intended to be part of the NHS. In some cases, the Province reviewed core areas and linkages against the aerial imagery available through Land Information Ontario, and boundaries of the NHS were adjusted (expanded or reduced) accordingly based on the imagery (OMNRF 2018). Additionally, the Growth Plan (s.4.2.2.5) allows refinement of the Growth Plan NHS as part of a Comprehensive Municipal Review (such as Halton's current Regional Official Plan Review – ROPR). Options for refining the Growth Plan NHS in Halton are provided in this Mapping Memo (section 3.2).

Figure 1 illustrates the Provincial NHS and the current Halton Natural Heritage System. Most of the Growth Plan NHS (97.8%) is encompassed within the current Natural Heritage System (i.e., before any updates undertaken as part of this ROPR). However, there are also a number of areas in the Provincial NHS that are outside the Halton NHS as it is currently defined and there is a substantial area of the RNHS (10,279 ha that is outside of the Provincial NHS. These additional areas were analyzed and evaluated to determine if they are appropriate, and to recommend whether the Region should be seeking refinements to the Growth Plan NHS within the Region of Halton. Considerations for incorporating the Growth Plan NHS into the ROP are discussed in the Policy Audit Technical Memo and options are discussed in the NHS Discussion Paper.

### 3.1.2 Scale of the Provincial NHS compared to Halton's NHS

For the purpose of this mapping audit, the portions of the Provincial NHS that are outside the current Halton NHS should be considered at two scales:

- Greater Golden Horseshoe scale, i.e., consider the functional role of cores and linkages across the entire Growth Plan area in the GGH; and
- A regional scale (i.e., Halton Region) to evaluate if the additional areas contribute to the goals and objectives of the ROP, including increasing the certainty that regional biodiversity and ecological functions will be preserved and protected.

The Technical Report notes scale is important, and that given the Provincial NHS, "… is on a broad, regional scale [regional meaning the Greater Golden Horseshoe], it is focussed on identifying larger core areas and broad linkages. The [Provincial] mapping was not intended to identify all areas and connect features that may be important to consider at a local or smaller scale …" (OMNRF 2018). It goes on to say that other local or regional NHSs would do this and would connect to the Provincial NHS. Thus there is an expectation that regional and/or local municipalities would develop complimentary NHSs that would build on the Provincial NHS and incorporate natural heritage features and functions of local importance.

### 3.1.3 Relationship of the Halton NHS and the Provincial NHS

The Provincial NHS should be viewed as complementing, rather than replacing Halton's NHS. The Provincial NHS functions to connect Halton's NHS to other natural heritage features and natural heritage systems beyond Haltons' borders. This connection to a larger NHS enhances the Region's ability to achieve the goals and objectives in the ROP by facilitating the movement of wildlife and migration of vegetation in response to climate change and other stressors. Although some of the larger additional patches in the Province's NHS that represent expansions to the Halton NHS will contribute to the Region's Goals and Objectives, this is a secondary and relatively minor function; the more important one being the connectivity provided to areas outside the Region. Where the Provincial NHS and Halton NHS overlap, there are some policy differences, with greater protection being provided by the Provincial policies in some aspects, and in others the ROP providing stronger protection. These differences are addressed in the Policy Audit Technical Memo.

One obvious difference between the RNHS and Provincial NHS is that the latter includes some aggregate operations within the NHS whereas the RNHS does not. The Growth Plan allows for aggregate extraction within the NHS probably because it is viewed as an interim land use and in the long term assumes that the area can be rehabilitated to have natural heritage value, subject to some restrictions and conditions. The Regional OP does not allow aggregate extraction within the Regional NHS, but defers to the Greenbelt Plan policies for aggregate operations within the Greenbelt. This difference in treating aggregate operations will have to be considered as part of the ROPR, especially if there is any attempt to combine the Provincial and Halton NHS.

### 3.1.4 Growth Plan NHS Principles and Criteria

The Principles provided in the Technical Report are very high-level and guide the overall process (e.g., being an automated replicable process, based on empirical evidence, etc. – see page 4 of OMNRF 2018 Technical Report). They are not ecological principles (e.g., link all key natural features, protect all existing linkage features, etc.). The principles include:

- Well-documented and clearly explained criteria, rationale and methods are to be used;
- Scientific and empirical evidence are to be used to support decisions where possible;
- Consistency with current provincial NHS planning criteria and guidance (e.g., Natural Heritage Reference Manual and Greenbelt Plan NHS) is to be maintained;
- Defendable and repeatable methodology is to be used (i.e., the same map would result from someone else using the same criteria and methods;
- Scale of the regional system is to focus on identifying larger core areas and broader linkages within a regional landscape context;
- Connection of the NHS mapping to existing regional mapping in adjacent areas is to be made as much as is reasonably possible (i.e., connect to other NHSs in adjacent planning areas); and
- The criteria and methods are to have potential for application in another similar geography (i.e., could potentially be applied to other areas of southern Ontario).

The Technical Report for the Provincial NHS identifies core and linkage "criteria" for defining the NHS:
Criteria for Core Areas (from Table 3 in Technical Report):

- at least 50% natural cover or public lands
- minimum size of 500 ha
- minimum 100 ha in areas with low natural cover (this was applied to the western and southern portions of the Growth Plan area, including most of Halton below the escarpment and including N. Aldershot – see Fig 4 In Technical Report)

Linkage Criteria (from Table 4 in Technical Report):

- consists of natural features and rural/agricultural lands without barriers to animal and plant movement
- multiple connections between core areas
- connections to NHSs in adjacent lands [i.e., Halton's NHS]
- no minimum or maximum length
- width of 500 m plus natural features that extend beyond boundary

The Growth Plan NHS is mapped as a single entity, that is, core areas and linkage areas cannot be distinguished in the mapping. Some areas are obviously linkages as they are long and linear and clearly meet the criteria for Linkages, and others are clearly core areas. However, some portions of the NHS could be either, and may actually be both if they meet criteria for cores and linkages. Being able to distinguish cores and linkages may be a moot point as there is no difference in how they are treated in policy. Treating cores and linkages as equally important parts of the NHS is consistent with a systems approach and is the same approach as the Region took in developing its NHS.

The Provincial NHS is characterized as follows in the Technical Report:

- comprises 45% of the Growth Plan area outside of settlements
- includes "almost all":
    - Life Science ANSIs
    - wetlands
    - PSWs
    - provincially tracked species records
    - Endangered and Threatened species occurrences (after screening)
    - rare plant communities
- includes 24% of the Prime Agricultural Areas in the Agricultural System for the Growth Plan area
- 54% of existing aggregate licences
- 52% of primary sand and gravel deposits
- 77% of select bedrock resources

## 3.2 Refinements to the Growth Plan NHS

As noted above, the majority of the Growth Plan NHS overlaps with the current Halton NHS. However, there are also portions of the Growth Plan NHS that are outside of the Halton NHS and these are referred to here as the "additional areas". As part of this Mapping Audit, the additional areas were evaluated and suggestions are provided with respect to whether the Province should modify/remove any of them. Note that the suggestions provided here are with respect to whether refinements to the Growth Plan NHS are warranted. How the Growth Plan NHS and associated policy requirements will be accommodated in the ROP is a policy issue and is not discussed in this Mapping Audit.

### 3.2.1 Guidance and Process for Evaluating the Need for Refinements

No detailed instruction has been provided by the Province with respect to the scope and nature of refinements that will be entertained as part of a Comprehensive Municipal Review. However, the Technical Report (page 39) provides the following general guidance:

- Minor, technical adjustments (e.g., to account for distortion from map projections, discrepancies based on map scales
- Addition of natural features continuous with the boundary of the provincially mapped NHS. When natural features are added, the boundary of the NHS will be extended to include a 30 m vegetation protection zone beyond the edge of the feature consistent with the methods used for provincial mapping (see Figure 18)
- Removal of small portions of the NHS where there is built-up impervious development or infrastructure (that would act as barriers) that was not identified and stamped out of provincial mapping
- Removal of small isolated portions of the NHS that protrude from the Greenbelt Plan boundary or settlement areas provided these areas have no natural features and are not connected to the larger provincial NHS.

With respect to the third bullet, policy 4.2.2 of the Growth Plan provides more direction, indicating that the Province's NHS is not to extend into "Settlement Areas" (note this is not a term used in the ROP and how it is used in this report is addressed below). Thus, where the Growth Plan NHS does extend into Settlement Areas, it should be removed.

The Province's Technical Report provides guidance on the process for requesting refinements to the Province's NHS:

"Proposed refinements to the NHS shall be accompanied by supporting documentation, including any fine-scale mapping of natural features or infrastructure that was used to adjust the boundaries, and shall be submitted to the Province for review along with the proposed official plan or official plan amendment implementing the results of the MCR process." (OMNRF 2018, pg. 39).

### 3.2.2 Method for Evaluating Growth Plan NHS Outside of Halton's NHS

The Growth Plan NHS areas outside of the Halton NHS were evaluated using ArcGIS 10.1 Geographic Information System (GIS) software (ESRI 2012). Analysis involved assigning unique identifiers to all polygons that resided outside of the Halton NHS layer and classifying them into the following five categories based on size: less than 1 ha; $\geq$1-$\leq$2 ha; >2-$\leq$5 ha; >5-$\leq$10 ha; and greater than 10 ha.

Areas less than 1 ha in size were omitted from further analysis as it was assumed they were mainly due to minor technical adjustments (i.e., distortion from map projections or discrepancies based on map scales). Although there are a lot of patches under 1 ha in size (2,432) they are

extremely small, totalling only 26.68 ha. They certainly would not reflect ecologically meaningful additions at a regional scale of mapping, but may be important at larger scales (e.g., for a plan of subdivision). In addition, the substantial number of them precludes examination of each one, and they are better addressed collectively as discussed below.

Area differences greater than 1 ha were checked using recent ortho-imagery to identify underlying ecological features that would warrant consideration for retention or removal from the Province's NHS. The main tests for determining if a removal or refinement is warranted are: 1) does the area fit with any of the four guidelines for refinement provided by the Province; and 2) does the area fulfil the function of a core area or linkage areas when evaluated in the context and scale of the Province's NHS for the GTA. The principles of the Province's NHS for the GTA, as described in the Technical Report were also considered in providing options. If the underlying area was built-up or contained infrastructure (that would act as barriers), a suggestion to refine provincial mapping was provided. To determine if any of the Provincial NHS needed to be refined because it overlapped with Settlement Areas we requested the Region provide shapefiles that would represent the Region's equivalent areas. These shapefiles included Urban Area and Hamlet boundaries as per Map 1G of the ROP. Any areas of the Provincial NHS that overlapped with the Settlement Areas provided were recommended for deletion.

Options to the Region for patches in the Growth Plan NHS which could be 'retained' or 'removed', or in some cases 'require further discussion', were logged in the attribute fields of the individual shapefile and are provided in Appendix 1. If there was no reason to remove or refine an area, then it was considered for retention. Considerations for determining the need for refinement to the Growth Plan NHS included:

Removals:

- Any addition that fell within a Settlement Area designation, and
- Any additional areas that were covered by any of the Province's four areas of guidance for refinement.

Areas that Require Further Discussion:

- Areas located in the North Aldershot Planning Area are addressed in section 3.4.1
- Mapping discrepancies greater than 1 ha; or
- Polygons where the function of the area depends on planning decisions elsewhere (e.g., the 'Y' west of Trafalgar Rd in Halton Hills).

### 3.2.3 Characterization of Additional Patches

The results of the Growth Plan NHS mapping exercise identified a total 2,482 polygons outside of the Halton NHS. Polygon sizes varied considerably from substantially less than 0.0001 ha (minimum) to 109.65 ha (maximum), with a mean size of 0.35 ha. These additional polygons sum to a total of 877.00 ha (2.2% of the Growth Plan NHS in Halton).

Of the 2,482 polygons identified only 50, totalling 850.32 ha, were 1 ha or more in size. Only these 50 polygons were individually evaluated for potential refinements. Of these, it was determined that 28 parcels in the Growth Plan NHS were considered to have ecological merit and were consistent with the Province's guidance and should be 'retained', 14 polygons should be 'removed', and 8 polygons warranted planning consideration and further discussion by the Region before a decision on their removal or retention can be made.

### 3.2.4 Options for Refinements to Growth Plan NHS in Halton Region

Table 1 provides a summary of the 'direction' given to polygons within each size category. A full description and commentary for the direction provided for individual polygons is provided in Appendix 1.

**TABLE 1: SUMMARY OF OPTIONS FOR REFINEMENT IN EACH PATCH SIZE CLASS (HALTON HILLS = HH; BURLINGTON = BUR; OAKVILLE = OAK; MILTON = MIL)**

| Patch size (ha) | Retain | | | | | Remove | | | | Requires Internal Discussion | | | | Total no. each size class |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HH | BUR | OAK | MIL | Crosses Municipal Boundary | HH | BUR | OAK | MIL | HH | BUR | OAK | MIL | |
| 1-≤2 ha | | 2 | | | | | 2 | | | | **1** | | **3** | **8** |
| >2-≤5 ha | | 4 | | | | 3 | | | 2 | | | | **1** | **10** |
| >5-≤10 ha | 3 | 4 | | | | | 3 | | 1 | | | | | **11** |
| >10 ha | 2 | 7 | | 4 | 2 **HH/MIL** | | 1 | | 2 | **3** | | | | **21** |
| **Total** | **28** | | | | | **14** | | | | **8** | | | | **50** |

Areas Suggested for Removal

Patches in Settlement Areas: 14 polygons were identified as fully or partially overlapping with settlement areas and consistent with s.4.1 of the Growth Plan should be removed.

Areas for Further Discussion

Patches that do not fulfil Growth Plan objectives: three of the additional polygons do not provide the intended function, for example a portion of the "Y" west of Georgetown which relies on connection being established through the SW Georgetown area (see NS_ID 1182 in Appendix 1)

Patches that are "slivers": There were seven patches 1 ha or greater that were mapping discrepancies resulting from the use of different base layers and do not represent additional

features or linkages. For example, patch NS_ID 109 (Appendix 1) is a sliver approximately 15 m wide and 900 m long that resulted from a discrepancy in the Regional boundary. We are recommending these for further discussion as the decision is not based on natural heritage, and because they are larger than 1 ha in size.

Patches Smaller than 1 ha

How to address the patches that are under 1 ha that are outside Halton's NHS is a vexing problem owing to the large number of them and the undesirable consequences of either deleting them or retaining them. Although the approximately 2,400 small patches were not examined individually, 50 parcels were looked at to get a sense of why they occur. Forty-eight of these parcels (96%) are mapping discrepancies, i.e. minor differences in the edge of a feature resulting from the use of different base layers. Thus based on the review of this sample of 50 areas <1ha most of the small discrepancies can safely be considered slivers. The remaining two patches were small parcels that overlapped settlement area designations, thus none of the 50 should remain in the Growth Plan NHS for ecological reasons.

The Province's process for requesting refinements (see section 3.2.1) would be an onerous process to undertake for over 2,400 polygons that add up to only 26.68 ha and is for all intents not a feasible proposition. Moreover, the Provincial guidance requires submission of the OP or OPA associated with the municipal comprehensive review.

Repercussions of Deleting Small (<1 ha) Mapping Discrepancies

- Unless the province will entertain a simplified process to address mapping discrepancies, this would require the onerous exercise of providing the mapping and rationale for deletion of each of the over 2,400 polygons under 1 ha, as well as the few larger ones also proposed for refinement.
- The mapping bases used by the Province are more current than those used by the Region (which are currently being updated as part of this ROPR) to develop Halton's NHS as part of ROPA 38. Because of this, deleting them would result in less accurate mapping of boundaries of features that comprise the NHS. In all likelihood, there may be features that are more accurately mapped on one base and others that are more accurately mapped on another base, so there may not be one base that is consistently better than another. The base that is generally the best could only be determined by examining a large number of features on both bases and comparing them to existing conditions in the field, which is a substantial exercise to undertake and for the purpose of mapping at the scale of Halton Region (or the GTA) is not suggested as the boundaries of many features will change through time from natural and human-caused influences.
- Even if deleting small areas resulted in less accurate mapping, it should not affect the eventual protection of a feature as feature boundaries have to be refined as part of the development process. Any changes in features from development or management that

is not subject to a Planning Act application (e.g., "normal farm practice") would occur regardless of the mapping of features.

- From a Regional scale mapping perspective (Halton Region), these small discrepancies are not ecologically meaningful, and as noted above if they are omitted from the Growth Plan NHS (i.e., omitted as part of this MCR), any that are meaningful at a site scale would be addressed at the time any planning application is brought forward in the future.

Repercussions of Retaining Small (<1 ha) Mapping Discrepancies

- The main issue with retaining the minor discrepancies is that the Growth Plan policies will apply to these areas. Whereas the ROP recognizes that mapping at this scale cannot be accurate enough for site-level planning, and that features change through time by providing policies that allow refinement, the Growth Plan does not. This is inconsequential at a Regional scale (Halton or the GTA), but when site-level planning is done these minor differences, and the accompanying Growth Plan policies, could be meaningful and may obstruct good planning if the discrepancy does not accurately reflect the feature, especially within Provincial NHS linkage areas. Given the large number of planning applications where there are disagreements on buffer widths that amount to a few metres, it seems clear that errors introduced through accepting these mapping discrepancies is a concern.
- From a strictly ecological perspective, retaining the minor discrepancies will not matter because, as noted above, they will either over-represent a feature (which does not matter from an ecological perspective) or in the case a feature is under-represented the error will be corrected through the planning process if development is ever proposed.

### 3.2.5 Options

1. For the 14 Growth Plan NHS patches outside the Halton NHS where removal is identified, and any additional patches identified for refinement or removal following further discussion, it is suggested that the Region approach the Province to have these refinements made to the Growth Plan NHS, following the process outlined in the Technical Report (OMNRF 2018, page 39).

2. On balance, it is proposed that deleting the minor discrepancies that are <1 ha in size is a better option than retaining them. This is because it is considered that imposing the Growth Plan policies on an area where they should not apply is a greater error than any that would result from under-representing a feature in the ROP mapping, especially given that the ROP allows for refinement of the feature to accurately determine its boundaries if development is proposed.

3. If the option to remove the minor (≤1 ha) discrepancies is implemented, it is suggested that the Region develop a rationale and process that addresses them collectively, to

avoid the need to document each of the 2,400 patches separately and enter into discussion with the Province to accept or refine it.

## 3.3 Mapping Centres for Biodiversity

The concept of Centres for Biodiversity arose from a recognition of the impact of fragmentation of natural communities that has occurred through historical agricultural practice and, more importantly, as rural/agricultural lands are urbanized, and the need to maintain a few very large (>200 ha) habitat patches that represent the main physiographic landscapes in Halton Region. The concept was introduced into the ROP as part of ROPA 38 in 2009, however policies and explicit mapping were not developed at that time. Centres for Biodiversity is more fully described in the Natural Heritage System Definition & Implementation report (Sustainable Halton Report 3.02, North-South Environmental Inc. 2009).

There have been discussions regarding the "Centres for Biodiversity" that have mapping repercussions. At present, the ROP refers to them in two places: s. 220.5 defines them and section 115.3(2), which lists "Enhancements to the Key Features including Centres for Biodiversity". The policy wording is a little unclear in that it could be interpreted to mean that Centres for Biodiversity are also a component of the RNHS, but in fact it is literally indicating that the Centres for Biodiversity were included in the Enhancements. Thus at present, the Centres for Biodiversity are mapped as Enhancements on Map 1G and because they are not explicitly identified in mapping, they cannot be distinguished from other Enhancement Areas. Also, there are no specific policies that address Centres for Biodiversity. Based on their current treatment in the ROP they would be treated as Enhancements.

There is an inconsistency between sections 115.3(2) and 220.5 in that they are treated as enhancements and are mapped on Map 1G in the former, while 220.5 indicates that they are areas that would be identified through an OPA subsequent to the approval date of the ROP (Dec 16, 2009), i.e., they would be determined in the future. The thinking in this was that, in the course of studies undertaken in support of development, any areas that met the definition of Centres for Biodiversity would be identified as such and incorporated into the ROP through any OPA associated with the development process. No OPA has identified any Centres for Biodiversity. More generally, the lack of any policies that explicitly address Centres for Biodiversity raises questions with respect to how they are to be addressed. The appropriateness of continuing to include Centres for Biodiversity in the natural heritage policy framework in the ROP has been raised in the Policy Audit Technical Memo and will be the subject of further discussion and analysis as the ROPR moves forward.

To some extent, there may be less of a need for the same number of Centres for Biodiversity that was originally envisaged given the increased connectivity to other natural features and systems through the Provincial NHS. However, they still contribute to the Goal (ROP Section 114) of the Halton Natural Heritage System by providing the potential for biodiversity protection in the area of Halton that is least represented in large Key Feature patches.

The are two options for addressing the concerns noted above:

1. Remove Reference to Centres for Biodiversity from the ROP:
   With this option the reference to Centres for Biodiversity would be removed from s.115.3(2) and the definition in s.220.5 (i.e., they would be removed entirely from the ROP). This option would also require examination of the one or two areas that were identified as potential Centres for Biodiversity currently mapped as Enhancements on Map 1G to see if the extent of mapping could still be justified. This option could result in the reduction or removal of some areas currently identified as "Enhancement".

2. Add the Centres for Biodiversity to Map 1G and develop appropriate policy direction:
   If the Centres for Biodiversity are to remain in the ROP they should be identified on Map 1G and new policy(s) should be developed to provide direction on the establishment and implementation of these areas, including their long-term management.

## 3.4 Review of NHS mapping in the North Aldershot Area

The purpose of this section of the report is to review and comment on the natural heritage mapping in the North Aldershot area of Burlington. It includes evaluating the new areas identified in the Growth Plan NHS that are outside the RNHS (referred to as the "additional areas") and potential refinements to the RNHS.

The North Aldershot Planning Area is situated approximately north of Highway 403 to the Regional boundary along the escarpment, and west of Kerns Road to the Regional boundary along Highway 6 (see Figure 2). The ROP treats it as a unique policy area known as NAME(where some areas allow for limited development) and generally reflects policies in the North Aldershot Inter-Agency Review Final Report (May 1994). That report predates the last two reviews of the Official Plan and all current Provincial plans and does not reflect current policies and mapping regarding natural heritage. A relatively large proportion of the area is mapped within the Regional Natural Heritage System on Map 1G in the ROP and the recent Growth Plan NHS includes areas currently not included in the RNHS.

### 3.4.1 Evaluation of the Growth Plan NHS in North Aldershot

Figure 2 identifies the areas in the Growth Plan NHS that are outside the Regional Natural Heritage System, i.e., the "additional areas" discussed in section 3.2 of this report. In evaluating the additional areas identified through the Growth Plan NHS, only areas greater than 1 ha were considered, consistent with the approach taken when looking at other Growth Plan NHS additions elsewhere in the Region (see section 3.2).

Figure 2 identifies 5 groups of additions, each composed of several separate polygons. Each of the polygons is identified in the legend of Figure 2 with the NS_ID number that corresponds to the evaluation table in Appendix 1. These groups are discussed below.

<u>Groups 1 and 2:</u>

Both Groups 1 and 2 are each composed of two main polygons all of which are designated as Escarpment Protection Area in the NEP. The NEP provides for two Special Provisions in the North Aldershot Planning Area. Special Provision 17 defers to land use policies in Amendment No. 197 to the City of Burlington OP. Amendment 197 incorporates the ruling in a 1996 OMB decision that includes the majority of the lands in Groups 2 and 3. Special Provision 21 notes that notwithstanding lot creation provisions within Escarpment Natural and Escarpment Protection Areas, new lots may be created in accordance with the City of Burlington OP within the North Aldershot Policy Area. Neither of these Groups of polygons are within a Settlement Area. With reference to the guidance for refinements to the Growth Plan NHS (see section 3.2.1 of this report), there is no reason to remove or refine these additional areas.

The policy framework that applies to these lands should be reviewed if the North Aldershot Policy Area designation is removed. From a natural heritage perspective, the polygons in Groups 1 and 2 should be added to the Regional Natural Heritage System in accordance with s.115.4(1) of the ROP. They would thus be in both the Regional Natural Heritage System and the Provincial Natural Heritage System.

Group 3:

This Group is composed of six main polygons, and a seventh very small one, situated between Waterdown Road and Grindstone Creek valley to the west, and extending from the south edge of the NEPA to Highway 403. They include the lands that are the subject of a current development application. They are also part of the lands included in OPA 197 described above. These polygons are largely open lands, mainly used for agriculture, but also include a former nursery. They constitute "pods" of land that lie between several key features, buffers and enhancement areas in the RNHS. Had it not been for the North Aldershot Policy Area designation, at least some portions of these pods would likely have been identified as buffers, linkages or enhancement areas in the RNHS at the time of ROPA 38. Although the reason for their inclusion in the Growth Plan NHS cannot be determined with certainty, it is likely they are included through a process that sought to include lands between natural features that are in close proximity to each other. The process described in the Province's Technical Report involved buffering each feature by 120 m and any areas where these buffers intersected with each other, were included in the Growth Plan NHS. Since the key features appear to be within 240 m of each other, all the lands within the intervening pods were captured.

None of these additional areas are identified within a Settlement Area and none meet the guidelines for removal or refinement provided in the Technical Report for the Growth Plan NHS. Thus it is suggested that there is no basis to remove or refine these areas in the Growth Plan NHS.

Group 4:

Group 4 consists of three polygons situated east of Waterdown Road and south of the Niagara Escarpment Plan Area. The westernmost of these three polygons (NS_ID 1268 in Appendix 1) is also included in OPA 197 as described above.

Like the polygons in Group 3, these are largely open lands currently used for agriculture. They are also surrounded by key features, buffers and enhancement areas in the RNHS. Had it not been for the North Aldershot Policy Area designation, at least portions of these polygons would likely have been identified as buffers, linkages or enhancement areas in the RNHS at the time of ROPA 38. The polygons are generally also surrounded by lands in the Greenbelt Plan NHS.

These lands are not identified as Settlement Area and based on the guidance for refinement of the Growth Plan NHS provided in the Technical Report for the Growth Plan NHS, there is no reason to remove or refine them.

Group 5:

Group 5 consists of two polygons; one (NS_ID 722) is situated on the west side of the former Regional landfill, parallel to the Falcon Creek valley and is wholly on the landfilled area. The other polygon (NS_ID 20) includes the north end of the former Regional landfill and parts of Bayview Park, as well as part of a wooded area that is designated as Mineral Resource Extraction Area on Map 1G of the ROP.

In general, the rationale for the boundaries of the Growth Plan NHS cannot be determined with certainty for this area. The Growth Plan NHS includes some, but not all wooded areas, and excludes some woodland that is likely Significant Woodland in the ROP. However, it includes part but not all of Bayview Park, which does not contain natural features. Based on the guidance in the Province's Technical report there is no reason to remove or refine any of these areas in Growth Plan NHS. If the North Aldershot Policy Area designation is removed from the ROP, there may be opportunity to refine the key features and enhancement area boundaries in the RNHS and this is discussed in section 3.4.2.

Summary

No refinements to the Growth Plan NHS within the North Aldershot area are proposed. There is potential for refinement of the boundaries (generally potential expansions), however in each case the area that would be expanded into is already identified in the RNHS. Thus from a natural heritage perspective there is no rationale for the refinement. We note that from a policy perspective, if there was merit in having the Growth Plan NHS policies apply rather than the RNHS policies in the ROP, then there would be a reason to undertake some minor refinements to the Growth Plan NHS.

### 3.4.2 Potential Refinements to the RNHS in North Aldershot

In addition to the potential refinements based on the Growth Plan NHS discussed above, there is an opportunity for other refinements of key features, buffers and/or enhancement areas in the

RNHS. The entire North Aldershot Policy Area was carefully reviewed using Google Maps (which facilitates "zooming in" to closely examine potential refinement areas) with consideration for current designations (e.g., key features, enhancements, Greenbelt Plan NHS and Growth Plan NHS). As noted above, no expansions to the Growth Plan NHS are suggested because in each case where it was felt there was potential for expansion, the area was already identified as being in the RNHS. Four areas that have potential for refinement of the RNHS boundary were identified (Figure 3) and are discussed below. It is noted that in some of these cases there are features or enhancement areas within the area currently mapped as North Aldershot Policy Area. It appears that to accommodate the policy decision to retain the North Aldershot Policy Area in the current ROP, the RNHS was removed where the North Aldershot Policy Area policies applied; i.e., the features and enhancement areas are not "beneath" the North Aldershot Policy Area. However, the Region may have a GIS layer that shows the key features, buffers, linkages, and enhancement areas prior to being cut against the North Aldershot Policy Area, in which case, the potential refinements suggested below may not be necessary.

1. Area East of Bridgeview Valley, West and North of Hillsdale Avenue

   This area lies between two linear stretches of the RNHS, both of which are also identified as Greenbelt Plan NHS. An east-west utility corridor bisects the area. At present, it is entirely identified in the ROP as North Aldershot Policy Area (i.e., is yellow on Maps 1 and 1G). On aerial photography this area appears to be in advanced secondary succession, is undeveloped and contains only a well-defined trail that extends from Old York Road to Hillsdale Avenue. This area could be added to the RNHS as an enhancement area.

2. Area Between the Fork in Bridgeview Valley

   The upper part of Bridgeview Valley has a fork in it, the entire feature having a "Y" shape. Bridgeview Valley is within both the RNHS and the Greenbelt Plan NHS. The area between the forks is open agricultural land, some of which is already included as an enhancement area on Map 1G. The extent of the enhancement area could be refined.

3. Watercourse that Runs through the Cemetery West of Snake Road

   There is a small watercourse that runs from north to south through the middle of the cemetery lands just west of Snake Road. It appears to have its origins near the 90 degree bend in Old York Road, just north of the intersection with Snake Road. There are two small patches identified as RNHS along the watercourse, but they do not reflect the linear and continuous watercourse feature. These features are both Regulated by Conservation Halton and thus refinement is probably warranted to include them in the RNHS.

4. Former Regional Landfill and Bayview Park

   The former Regional Landfill and Bayview Park are both currently identified as North Aldershot Policy Area on Maps 1 and 1G in the ROP. The former Regional landfill has some trails on it and an access road to service the infrastructure associated with the old landfill (leachate collection system, etc.). It has been planted with various species over the last 30 years in an attempt to establish native vegetation cover. Bayview Park is also a former landfill and currently includes the King Road Leash Free Dog Park, a model aircraft flying club facility and the Burlington Rifle & Revolver Club. Most of it is more manicured than the former Regional landfill. There is a key feature (woodland) along the south boundary of Bayview Park. From a natural heritage perspective alone, one or both of these areas could be incorporated into the RNHS, however consideration would need to be given to their intended long-term use for recreation and whether it is compatible with an RNHS designation. The former Regional landfill currently only supports passive uses and may be more appropriate for inclusion than Bayview Park.

   Regardless of whether either area is added to the RNHS, there is opportunity to refine two key features in these areas.

   a. There is a woodland on the former Regional landfill that is included as a key feature in the RNHS outside the North Aldershot Policy Area. The balance of the woodland could be included in the RNHS.
   b. There is a woodland that is mainly south of Bayview Park that is identified as a key feature in the RNHS. The boundary could be refined to include the portion that is within Bayview Park

Lastly, based on an examination of aerial photography, there appear to be woodlands contiguous with features captured in the RNHS in North Aldershot that extend through the Urban Area identified along the North Service Road on Maps 1 and 1G, outside the North Aldershot Policy Area. At least two of these contain watercourses (Indian Creek). Consideration should be given to incorporating these into the RNHS as part of any updating to the land use policies in and adjacent to the North Aldershot Policy Area.

## 3.5 Review of mapping for the Cootes to Escarpment EcoPark System

The Cootes to Escarpment EcoPark System is an innovative initiative to develop a strategy to protect, connect and restore natural lands and open space between the Niagara Escarpment and Cootes Paradise in Hamilton Harbour. It is administered through a cooperative arrangement among partner agencies and organizations consisting of the Royal Botanical Gardens, Hamilton Conservation Authority, Conservation Halton, City of Hamilton, City of Burlington, Halton

Region, Bruce Trail Conservancy, Hamilton Naturalists' Club, McMaster University and Hamilton Harbour Remedial Action Plan. The Cootes to Escarpment EcoPark System consists of six core natural areas referred to as "Heritage Lands", named to reflect the natural and cultural components of each area:

- Burlington Heights Heritage Lands;
- Clappison-Grindstone Heritage Lands;
- Waterdown-Sassafras Woods Heritage Lands;
- Cootes Paradise Heritage Lands;
- Borer's Falls - Rock Chapel Heritage Lands; and
- Lower Grindstone Heritage Lands.

The Heritage Lands include both publicly- and privately-owned lands. Management Plans have been prepared for each of the Heritage Areas (the one for Lower Grindstone is currently underway and is due to be completed by the end of 2019). Management Plans only address the partner-owned lands, which together are referred to as the Current EcoPark System Lands. In the Management Plans, privately-owned lands located within the Heritage Lands are referred to as "Privately Owned Outreach Areas" and lands outside the Heritage Lands but within the Cootes to Escarpment EcoPark System are referred to as "Adjacent Lands". The Management Plans are supported by an "Issues and Opportunities" report, and a "Classification and Zoning" report. The Issues and Opportunities reports, as the name suggests, identifies management issues as well as conservation opportunities (natural heritage and cultural) and recreational opportunities. The Classification and Zoning report utilizes the Niagara Escarpment Commission's "Niagara Escarpment Parks and Open Space System (NEPOSS) planning manual to identify appropriate classifications for each Heritage Area and within that, zoning that reflects characteristics such as ecological sensitivity and opportunities for providing public access. The key product of the Classification and Zoning report is identifying appropriate uses and long-term management directions for each of the Heritage Areas.

There are no policies that directly facilitate the implementation of management recommendations in the Management Plans. Implementation of management recommendations is at the discretion of each partner agency within their respective mandates and governing structures. There are no protective policies that apply to the Cootes to Escarpment EcoPark System per se (and nor should there be). However, we note that the Greenbelt Plan (2017, s. 3.3.3, pg 32) says, "Where geographic-specific park or public land management plans exist [within the Protected Countryside of the Greenbelt Plan], municipalities, agencies, and other levels of government must consider such plans when making decisions on land use or infrastructure proposals.". Thus, as there are Management Plans for the Cootes to Escarpment EcoPark System that addresses public lands, it would appear incumbent on planning authorities to consider them when reviewing development applications. This may be most applicable where there are development proposals within or adjacent to Heritage Areas. In such cases impact analyses and mitigation recommendations (for example as part of Environmental

Impact Assessments) should account for the role the Heritage Areas play in the overall Cootes to Escarpment EcoPark System. In other words, the value and significance of the natural features captured in a Heritage Areas is greater because they are part of the EcoPark System, and thus have an ecological function that goes beyond the feature itself. This could include consideration of the determination of the limits of the developable area, buffer widths, re-vegetation/rehabilitation plans and management needs such as design and provision of trails adjacent to and within the Heritage Areas. It could also involve working with the responsible public agency to undertake or support management within the Heritage Lands themselves to mitigate the inevitable increased use associated with development. The Management Plans, as well as supporting Issues and Opportunities and Classification and Zoning reports, provide information on ecological sensitivity, significance (natural heritage and cultural), current impacts that could be exacerbated by future adjacent development, current use and long-term management directions which include recommendations for management and mitigation of impacts and stresses. These reports may therefore assist in impact analyses and the determination of appropriate mitigation that could be implemented through the development process.

Owing to the multi-partner agreement to implement the EcoPark System and the public resources that have already been spent on the acquisition and management of the Heritage Lands, it is reasonable that potential population-induced negative impacts from development be mitigated through conditions of the approval process wherever possible. Note that these are not related to the EcoPark System per se, only, as noted above, that Key Features or other components of the RNHS that are within Heritage Areas contribute a landscape-level function (contributing to the connection between Lake Ontario and the Niagara Escarpment) that should be considered in environmental studies associated with development applications. More generally, the partner agencies that are directly involved in the development approval process, including Halton Region and the City of Burlington, should continue to consider and incorporate the significance of the Heritage Lands in their reviews when determining conditions for development approvals.

To address the issues discussed above, we propose the following options:

1. Illustrate the limits of the Heritage Areas and overall Cootes to Escarpment EcoPark System boundary on the appropriate Official Plan Schedules.
2. Provide a policy(s) that require the Region and City of Burlington to consider the significance of Cootes to Escarpment EcoPark System Heritage Areas when assessing development applications on adjacent lands.
3. Amend the relevant EIA Guidelines to identify and include consideration of Cootes to Escarpment EcoPark System Heritage Areas in EIA studies that accompany development applications on adjacent lands.

# SECTION 4.0 Update/Refinement of Mapping

## 4.1 Context for Mapping Update

The mapping as it currently appears in the ROP is based on the natural heritage system mapping undertaken as part of the Sustainable Halton exercise in preparation for ROPA 38 (North-South Environmental Inc. 2007). At that time, three options for a natural heritage system were developed that approximately reflected "minimum standards", "systems-based" and "enhanced ecological integrity" approaches. Council directed staff to develop the third option, "enhanced ecological integrity" to provide a high probability that biodiversity and ecological function to natural heritage in the Region was protected in the long term. The map for that option was refined as the framework for natural heritage policies was being developed. Discussions with the Province, addressing comments provided by the local municipalities and settling of appeals resulted in changes to the policy structure. As a result, some refinements were undertaken. For example buffers were refined in a number of places within urban areas where they overlapped with urban infrastructure but were left where they extended into green space (parks, etc.). This process was undertaken manually through examination of hard copy maps.

At present, it is felt that the mapping (Maps 1 and 1G) must be refined to better reflect the policies that define Halton's Natural Heritage System (NHS) and/or the policies that define the Halton NHS themselves should be refined to better reflect how it was mapped. It has also been pointed out that there are some minor inconsistencies in the extent of the Region's Natural Heritage System between Maps 1 and 1G that need to be resolved. Addressing these concerns will in part involve updating the mapping to reflect planning decisions that have been made since ROPA 38, as well as updates to base map layers provided by the Province and/or conservation authorities. Undertaking these mapping refinements is essential to provide transparent mapping that accurately reflects the policy structure and which incorporates the most current data available. As part of this current ROP review, there will be a comprehensive refinement of the NHS mapping that will include:

- review of features and functions identified in current Provincial plans and policy documents to ensure that Halton's NHS reflects current Provincial direction;
- identification of the most current data sources for developing updated base layers to use for revised NHS mapping, including the appropriateness of proxy information for features for which data are not available;
- incorporation of mapping updates based on land use decisions and other mapping considerations (e.g., revisions to North Aldershot Planning Area, review of the Centres for Biodiversity, consideration of the Cootes to Escarpment EcoPark System boundaries, etc.), as described below;
- review of buffers, linkages and enhancements based on the updated base information and mapping updates.

It is felt that such a comprehensive review should be undertaken as part of Phase 2 so that an updated depiction of the RNHS can be developed and it can be included in the consultation process. This has been discussed with Regional staff who have developed a work plan to undertake the suggested mapping updates. This work plan will be highlighted in the Natural Heritage Discussion Paper and will include the creation of draft NHS mapping for further consultation in Phase 3. This will result in mapping that better reflects current data availability and land use decisions, but which also follow the guidelines and principles provided in the background reports for ROPA 38 that applied a systems approach to protecting Halton's natural heritage. It is noted that decisions on the NHS policies made through Phase 3 of this ROP review, may result in the need for further refinements to the NHS mapping.

### 4.2 Description of Process for Mapping Updates

The purpose of the overall project is to strengthen the long-term viability of Halton's natural heritage and water resources through exploring opportunities to update existing policies and mapping and to introduce new land use policies where appropriate. This project includes updating the Regional NHS mapping to reflect changes that have taken place since the original NHS mapping for ROPA 38. These updates are essential and as they are a result of land use decisions (OMB decisions, approved developments, in-field feature refinements and Council decisions) they are factual and not contestable. Although these updates are strictly a GIS exercise to refine shapefiles, it resulted in substantial thinking about how the Regional NHS mapping was assembled in GIS and how updates should be undertaken. Other refinements may still be needed to address policy refinements, and these would be undertaken by the Region following the consultation on any policy suggestions that arise from the ROP review. This section of the report describes the process that was followed for updating the Regional NHS and provides direction for further refinement of the NHS mapping.

The mapping updates are characterized into four groups:

- Updates based on Minutes of Settlement and/or OMB Decisions (OMB Changes)
- Updates resulting from Approved Development Applications (Planning Applications)
- Updates based on staff directions (Staff Refinements)
- Updates based on Council directions (Special Council Permits)

The OMB Changes and Planning Applications are similar in that they are changes that can be made verbatim to the Halton NHS without consideration of having to modify buffers or linkages, or making them align with the adjacent NHS. They represent decisions that cannot be altered and in that sense are straightforward.

Staff Refinements are changes resulting from analysis of particular features that have resulted in changes to feature boundaries. In some instances, these analyses included field verification. In all cases, these refinements involved the update of a key feature boundary (e.g., woodland or

wetland). Before changes to the Region's Natural Heritage System could be made, there was a need to look at other layers of base information to see if there was another feature that affected the update. For example, a swamp wetland boundary could have been refined and the wetland layer adjusted, however, the same area may still be woodland, so that the overall NHS boundary would not change. Similarly, there could be a buffer from another feature that extends over an area proposed for refinement, thus the outside NHS boundary would be dictated by the buffer after the refinement of the feature. Last, changes to a feature may result in the need to modify the associated buffer.

Special Council Permits constitute a few updates that resulted from Council decisions and all applied only to woodland boundaries. Like the staff refinements, they required looking to see if there were other features that would affect the refinement of the NHS boundary and the need to re-examine buffers.

The Region provided the shapefiles for these five categories of update, as well as the base layers that were used to compose the original NHS for ROPA 38.

There are base information layers that are more recent than those used to create the original NHS, for example updated wetland layers from the Province. As noted in the discussion above, there is a need to update the Region's base layer information with these more recent base layers as part of a comprehensive refinement of the Halton NHS. This report suggests that the Region undertake these base layer updates as part of the comprehensive NHS refinement in Phase 2 of this ROP review. The OMB and Planning Application changes can be incorporated verbatim, however the updates based on the Staff Refinements and Special Council Permits will need to be re-checked with respect to other underlying features and buffer adjustments, as they should be based on the updated base layers. In addition, once the base layers are updated and the updates from this exercise have been incorporated, there may be need to re-examine associated enhancement areas and linkages, which will require ecological input.

The refinements that resulted from the following types of updates are documented in a summary table(s) that is being provided to the Region with the shapefiles of the updates. The table(s) list all changes including:

- an identifier unique to each polygon/change;
- the source of request for change (OMB, development approval, MOS, etc.);
- any resulting addition or deletion to the RNHS;
- comments explaining change, including addition/refinement of buffers, linkages and enhancements;
- North Aldershot Policy Area; and
- Natural Heritage System for the Growth Plan.

It is noted that in addition to the mapping updates described here, there are other potential updates that arise from the evaluation and analysis in other aspects of Task 4 such as the

North Aldershot evaluation (section 3.4.2) and the discussion on the Centres for Biodiversity (section 3.3). The options provided for these other aspects will be refined following review of this Mapping Audit and will be carried forward into the Natural Heritage Discussion Paper, which is the summary document for Phase 2 of this ROP review. The Natural Heritage Discussion Paper will be subject to a review process that will identify the direction forward for the Natural Heritage System theme of the ROP review. Any mapping updates (i.e., modification of shapefiles) resulting from the review of Phase 2 would be completed by the Region.

### 4.2.1 Methodology for Updates

The process for completing mapping updates involved assigning unique identifiers to all of the polygons contained in OMB Changes, Planning Applications, Special Council Permits and Staff Refinement shapefiles. This facilitated tracking all of the updates for each polygon.

All updates based on Minutes of Settlement/OMB Decisions and Approved Development Applications were completed (except for some road crossings, see below). Polygons were examined to determine if they would potentially result in additions or deletions to the NHS. If the polygon was completely contained within the existing boundary of the RNHS, then no action was taken. Wherever the update extended past the outer boundary of the RNHS, then the outer boundary of the RNHS was refined. Depending on the type of addition (i.e., significant woodland, wetlands), 30m buffers were applied to polygons to determine the final revised boundary of the NHS (except in urban areas within an approved local NHS). If the added polygon was completely outside of the outer boundary of the RNHS, then the total area was added and a 30m buffer was applied to applicable key feature(s).

If the area was a deletion, the area and its associated buffer (if applicable) was deleted from Halton's NHS. In some cases the buffers need to be refined for the adjacent NHS that remained to close polygons and ensure the buffers were appropriately applied. Where the NHS contained a watercourse that crossed beneath a road, the connection was maintained.

For updates based on Special Council Permits and Staff Refinements, polygons designated as additions were checked against the original NHS in order to determine the extent of the additional area added to the NHS. If the area was completely contained within the existing NHS, then no action was undertaken. If the area extended past the outer boundary of the NHS, then the area which extended outside the outer boundary was added to the NHS. If the added polygon was completely outside of the outer boundary of the NHS, then the total area and buffer (if applicable) was added to the NHS and linkage and enhancement opportunities were evaluated.

For Special Council Permits and Staff Refinement deletions, amendments were checked for underlying feature and buffers to determine if the area should be retained in the NHS. If the removal area contained a different key feature or NHS component, then only areas that fell outside of either the other key feature or NHS component area (i.e., buffer), were removed.

Based on the type of deletion (significant woodland, wetlands, regulation limits), a 30m buffer area was modified or omitted to the removed areas.

All deletion and removal changes were logged in the attribute fields of the individual shapefiles for mapping updates.

#### 4.2.2 Characterization of Updates

A total of 389 'updates' were considered in the analysis, with the majority (74.8%) resulting in 'changes' to Halton's NHS (Table 2).

Table 2 provides a summary of changes to Halton's NHS mapping as a result of updates. A full characterization and commentary for individual mapping updates is provided in Appendix 2.

**TABLE 2: SUMMARY TABLE LISTING ALL CHANGES TO THE HALTON'S NHS MAPPING.**

| | No. decisions identified as 'Additions' to the NHS | No. decisions identified as 'Deletions' to the NHS | No. of updates resulting in 'no change' to the NHS | No. of updates resulting in 'change' to the NHS |
|---|---|---|---|---|
| OMB Decisions | 3 | 5 | 7 | 1 |
| Planning Applications | 103 | 188 | 36 | 255 |
| Staff Refinements | 13 | 25 | 45 | 38 |
| Special Council Permits | 0 | 7 | 0 | 7 |
| Total | 119 | 225 | 88 | 301 |

### 4.3 Other Mapping Issues Arising from the Update Process

The updates of the four categories described in section 4.2 were relatively straightforward to undertake. However, undertaking the process checking the base layers led to other considerations that could not easily have been predicted until this process was undertaken. Notably, it became evident that there had been some adjustments and updates undertaken to the RNHS ROPA 38 mapping such that the Halton NHS could not be re-constructed solely from the original base layers (e.g., the adjustment of buffers in urban areas noted in section 4.1).

Overall, the process for developing the most current mapping of the Halton NHS is complicated and not easy to replicate. Also, with the release of the Province's NHS, now subject to policies in three provincial plans (Niagara Escarpment Plan, Growth Plan and Greenbelt Plan), there are decisions to be made about the overall policy framework that will likely affect the mapping of the Region's Natural Heritage System. In light of this, there is merit in considering undertaking

a full update of the NHS in a "Phase 2B" by updating the base layers (including the updates undertaken as part of this Mapping Audit) and re-generating the Halton NHS as suggested in section 4.1.

As part of the full update, it would be beneficial to develop a protocol for future updates that would simplify future refinements of the mapping. It is understood that it is inefficient to just update the NHS without updating the base layers at the same time. If the base layers are not updated, then the NHS becomes increasingly hard to re-create. Considerations for an update protocol could include:

- ongoing incorporation base layers as they become available from the Province, conservation authorities, etc.;
- requiring all studies that refine the Halton NHS to provide a product that includes shapefiles broken down by component layers to match the Region's base layer files;
- a protocol for documenting all updates;
- metadata file should be recorded to track all changes; and
- recognition that the NHS itself probably cannot just be refined; base layers need to be refined and then NHS "re-generated."

### 4.4 Summary and Options for Updating the Halton NHS

The updates undertaken as part of this project reflect decisions and recent information that has been collected since the NHS mapping was undertaken for ROPA 38. In addition to these there are some other areas where the Halton NHS mapping could be refined to better reflect the policy structure, and/or vice versa, as outlined in section 4.2.1. In addition, the base layer updates that the Region is undertaking as described in section 4.2 will result in the need to re-examine linkages and enhancement areas. Lastly, there are decisions to be made as part of the policy update that will affect the final NHS mapping including:

- whether the approach to determining buffers to key features will be changed;
- whether to request refinements to the Provincial NHS mapping;
- how the Province's natural heritage system for the GTA will be incorporated into policy and mapping in the ROP;
- how to map the Water Resource System and if it will be integrated with NHS mapping;
- updating the policy approach in North Aldershot and resulting changes to mapping;
- whether to retain and map the Centres for Biodiversity;
- whether to add the limits of the Cootes to Escarpment EcoPark System to the Region's Maps;
- designation of prime agricultural lands; and
- whether to incorporate natural hazards into the Halton NHS.

Final updates to the Halton NHS mapping should not occur until these decisions have been made during the course of Phase 3 of this ROP review. However, as Phase 3 is progressing,

updates on the base information that will be needed to refine the Halton NHS can be undertaken. In addition, the overall process for updating the NHS mapping can be discussed and refined, with consideration for the decisions that need to be made.

# SECTION 5.0 Water Resource Mapping/Approach

## 5.1 Context for Water Resource System Mapping

Provincial Policy Guidance

The Provincial Policy Statement 2020, Growth Plan 2019 and the Greenbelt Plan 2017 were updated to include additional guidance regarding the Water Resource System (WRS), which is discussed in detail in the Background Review Technical Memo. The respective Plans provide policy direction on the management and identification of the WRS, which is to be supported through mapping.
Accounting for all provincial policy requirements and additional policy guidance, the water resource system will consist of groundwater systems, surface water systems, key hydrologic features, areas and functions, and includes:

- Surface Water Features (and their functions):
    - Watercourses: Rivers, permanent and intermittent streams, and stream channels;
    - Inland lakes and their littoral zones, and kettle lakes;
    - Wetlands;
    - Riparian areas and vegetation protection zones; and
    - Shoreline areas.
- Ground Water Features (and their functions):
    - Significant surface water contribution areas;
    - Seepage areas and springs, discharge areas;
    - Significant groundwater recharge areas (ecological and drinking water source); and
    - Aquifers and unsaturated zones and highly vulnerable aquifers.

Key hydrologic features and key hydrologic areas located within the Greenbelt Plan area and/or outside of settlement areas (as identified in the Growth Plan) are subject to additional policies. Accordingly, the WRS mapping should include the Greenbelt Plan and settlement area boundaries in order to clearly identify which key hydrologic areas and key hydrologic features are subject to additional Provincial policies.

Watershed Planning

Provincial policy emphasizes the importance of ensuring that water resource systems will be identified and informed through watershed planning, and that municipalities will partner with Conservation Authorities to protect and restore water quality and quantity within a watershed. The Region currently applies these principles through partnerships with Conservation Halton, Credit Valley Conservation and Grand River Conservation Authority, and policies that require sub-watershed studies and Environmental Impact Assessments (EIAs) be undertaken in areas of development to ensure the protection of the WRS.

Draft Provincial Watershed Planning Guidance was released in 2018 (Watershed Planning in Ontario, Guidance for land-use planning authorities, DRAFT February 2018) and is discussed in detail in the Best Practices Technical Memo. Through consultation with the Region, it has been established that the Region is considering developing a regional Guideline for Subwatershed Studies, which is further supported as a suggestion of this Mapping Audit Technical Memo. Following the finalization of the Provincial Watershed Planning Guidance document, the Region will incorporate the guidance document into regional policy as necessary. Until that time, the Region will rely on the Provincial Policy Statement 2020, Growth Plan 2019 and the Greenbelt Plan 2017 for provincial policy guidance.

Halton Region Water Resource System Mapping

The Halton Regional Official Plan (ROP) currently does not include mapping of the WRS. The Region's Natural Heritage System mapping addresses some water resource features, as the NHS and the WRS share several key features (e.g., watercourses, wetlands), however, many key hydrologic features and areas are not currently addressed through mapping, and they are not mapped as a "system".

As Water Resource Mapping does not currently exist, and due to the scope of Phase 2 of the ROP Review, this mapping audit comprises an inventory and analysis of the existing information available in order to provide options for how best to incorporate WRS mapping into the ROP in the future.

## 5.2 Relationship between the NHS and WRS

The Natural Heritage System and Water Resource System share many of the same elements, while also containing elements that are unique to each system. An example of this is the wetland data layer, which would be used for both systems, while the woodlands data layer is unique to the NHS. Due to the partial overlap between the two systems, it is important to identify the relationship between the NHS and WRS in order to determine how the interdependency of the two systems should best be addressed in the ROP policy and mapping.

The NHS and WRS share the following features and areas:

- Watercourses

- Waterbodies
- Wetlands (including significant wetlands and significant coastal wetlands)
- Riparian areas and vegetated protection zones (e.g., watercourse buffers, waterbody buffers, and wetland buffers)
- Shoreline areas/buffers, floodplains
- Seepage areas and springs (in the Greenbelt Plan NHS)

While surface water features are shared elements in both the WRS and NHS, only a few groundwater features are common to both systems (e.g., seepage areas and springs), thus most of the groundwater features only occur in the WRS and are defined as key hydrologic areas. Despite this it is recognized that some key features in the NHS also rely on or are at least connected to groundwater, thus there is a functional interdependence between the NHS and WRS in this regard. The key features and areas that are not shared between the two systems but for which there is a functional relationship include:

- Significant surface water contribution areas;
- Discharge areas;
- Significant groundwater recharge areas (ecological and drinking water source);
- Aquifers and unsaturated zones and highly vulnerable aquifers;
- Significant woodlands (where they are also wetlands (e.g., swamps and treed fens));
- Significant wildlife habitat (where the habitat is surface or groundwater dependant, e.g., amphibian breeding ponds);
- Significant Areas of Scientific Interest (where they are surface or groundwater dependant); and
- Fish habitat.

Where key features are shared by the NHS and WRS, either physically or functionally, they need to be consistent in how they are addressed in policy and mapping. Key features that are common to both systems should be reflected identically in the mapping of the two systems. The policies that address the NHS and the WRS will likely be quite different as the issues and the approach to protection are generally different between the two systems. However, when developing or refining policies, the commonalities and functional relationships should be recognized, either through text or by cross referencing. For example, a WRS policy that addresses wetlands should acknowledge that wetlands are also a Key Natural Heritage Feature, or cross reference with s. 115.3, which includes significant wetlands from a NHS perspective.

Due to the distinct differences in how the two systems need to be protected, it is suggested that the two systems be addressed in separate schedules and policies within the Halton ROP. Thus, it is proposed the Water Resource System be shown as a unique Map in the Halton ROP (see section 5.4).

## 5.3 Methodology

Through consultation with the Region, Local Municipalities and Conservation Authorities, relevant data for the WRS mapping were identified. Information that was reviewed generally falls into two categories: information that is higher-level and is available Region-wide or for a larger geographical area (e.g., Conservation Authority floodplain mapping), or studies that provide greater detail and are scoped to a specific area (e.g., watershed and sub-watershed studies). The mapping information was then categorized according to whether they are surface water features or groundwater features (including key hydrologic areas and their functions) that are required to be identified as part of the WRS as per provincial policy. Following the identification of the feature, the data were then assessed to determine if they are of acceptable quality to be incorporated into the Region's WRS mapping.

Mapping information has been categorized into two classes: Class 1 Data and Class 2 Data. These classifications are based on three criteria: the vintage, the format of the data, and the characterization methodology used to establish the data/information.

Data Categorization Criteria

The vintage of the data refers to the date the spatial information was created; an absolute cut off date has not been applied, rather it has been considered on a case-by-case basis. For instance, if information has been created in the same spatial extents more recently, the older information is deemed obsolete. If the information dates back more than 30 years and continues to be the only information collected/available in that area, it has been included for consideration.

The format of the data is binary: is it in a digital format (i.e., shapefiles) such that it can be incorporated directly into the WRS mapping, or does it require digitization (i.e., PDF or paper copy).

The characterization methodology is the means by which the data were collected and evaluated (i.e., modelling software). The characterization methodology has also been considered binary in that it either meets current best practices or does not.

Data Classes

Class 1 Data is mapping information that is deemed of high quality and available to be incorporated directly into the WRS mapping. The data meet all three criteria, meaning the information exists in a digital format, is of recent vintage, and the characterization methodology meets current best practices.

Class 2 Data is mapping information worthy of consideration as it provides some useful information, however, is not viable for direct inclusion into the WRS mapping due to failure to meet one or more of the three criteria.

## 5.4 Evaluation of Data

### 5.4.1 Region-wide Information

At the onset of the project, the Region provided all available mapping information of the NHS which included several WRS features, compiled by both the Region and Conservation Authorities. Source Protection Area Assessment Reports were identified as a potential resource for mapping information later in this exercise and were also incorporated into this review. The shapefiles provided by the Region range in vintage, format and characterization methodology; a review of the data is provided in Appendix 3, Table 1.

**Surface Water Features**

As part of Phase 2 of this study, the Project Team (North-South Environmental) evaluated, merged and modified these data in order to create shapefiles for each of the components of the NHS that are considered accurate and current. The methodology applied by the Project Team has been detailed in earlier sections of this technical memorandum. All files created by the Project Team are polygon shapefiles created in ArcGIS, meaning they meet all three data criteria and are categorized as Class 1 Data. A list and description of these shapefiles is provided in Appendix 3, Table 2.

The following key hydrologic features and areas have been categorized as Class 1 Data and are considered acceptable for incorporation into WRS Mapping:

- Regulated Watercourses
- Regulated Watercourse Buffers (30m)
- Regulated Waterbodies
- Regulated Waterbody Buffers (30m)
- Wetlands
- Wetland Buffers (30m)

These features address the WRS mapping requirements for most of the surface water features and are summarized in Table 3. The only surface water feature not explicitly addressed by the existing shapefiles is shoreline areas. It has been assumed that shoreline areas are captured under Regulated Waterbody Buffers, however the distinction between the two is worthy of consideration at later stages of this exercise.

**TABLE 3: SURFACE WATER FEATURE MAPPING DATA AVAILABILITY BASED ON REGION-WIDE DATA**

| Surface Water Feature Required per Policy | Surface Water Feature Available Mapping Data | Spatial Extent |
|---|---|---|

| | | |
|---|---|---|
| Watercourses: Rivers, permanent and intermittent streams, and stream channels | Regulated Watercourses | Region-wide |
| Inland lakes and their littoral zones, and kettle lakes | Regulated Waterbodies | Region-wide |
| Wetlands | Regulated Wetlands<br>Regulated Wetland Buffers | Region-wide |
| Riparian areas and vegetation protection zones | Regulated Watercourse Buffers<br>Regulated Waterbody Buffers | Region-wide |
| Shoreline areas | Regulated Waterbody Buffers | Region-wide |

**Note: Buffers consist of 30m buffers from the regulated feature, or modified as per the methodology detailed in Section 4.2.1.*

Headwater Drainage Features

The shapefiles provided by the Region (and Conservation Authorities) address all surface water features; the one feature whose completeness remains in question relates to headwater watercourses. Best practices have recently evolved to also consider the headwater drainage features (HDFs) classification protocol (Evaluation, Classification and Management of Headwater Drainage Features Guidelines, CVC & TRCA, 2014) to characterize and evaluate these features and establish management requirements accordingly. HDFs may often be unregulated (although not exclusively), resulting in a gap between the Regulated Watercourses shapefile and an accurate depiction of all watercourses within Halton Region which may be considered as part of a NHS.

The Region should apply current best practices regarding HDFs (ref. Best Practices Technical Memorandum) and should consider incorporating policy into the ROP that requires the identification and classification of HDFs in future studies (i.e., sub-watershed studies). Mapping information for HDFs has been further analyzed as part of the Watershed and Subwatershed Study Review and are discussed in the following section of this memo.

Floodplain Mapping

Floodplain mapping is managed by Conservation Authorities and undergoes regular updates. Floodplain mapping is not uniform as it is updated on an individual watercourse basis and exists in two forms: engineered and non-engineered. The Conservation Authorities provide on-line floodplain mapping tools, and have updated their respective mapping at the following dates:

- Credit Valley Conservation: 2014
- Conservation Halton: 2019 (currently updating)
- Grand River Conservation Authority: 2019

Note, Credit Valley Conservation distinguishes floodplain mapping between engineered and non-engineered; Conservation Halton and Grand River Conservation Authority do not distinguish between engineered and non-engineered.

Floodplain mapping is not identified as a key hydrologic feature or area within the policy definition of the WRS. However, through consultation with the Region, Local Municipalities and Conservation Authorities, it has been established that it could be included in the WRS mapping.

The Region should obtain floodplain mapping information from the respective Conservation Authorities to be included in the WRS mapping.

Riparian Areas and Vegetation Protection Zones

Vegetation protection zones are defined in the Greenbelt Plan and Growth Plan as vegetated buffer areas surrounding key natural heritage or hydrologic features. In most (but not all) cases, vegetated buffers are specified as being 30m from the outer boundary of features, while riparian areas are not as clearly defined as they are assessed on a case-by-case basis. In the absence of defined riparian areas identified through field investigations, meander belt widths and watercourse fisheries setbacks are suggested as surrogates (or "proxy") data; the greater of the two distances should form the basis of the riparian area. In the absence of meander belt widths and fisheries setbacks, watercourse buffers are the subsequent most appropriate surrogate data to use for determining Riparian Areas.

Regulated Watercourse Buffers (30m) and Regulated Waterbody Buffers (30m) are available Region-wide and should be used as surrogate data to define riparian areas and vegetated buffer zones as per policy requirements for the WRS system. In areas where Watershed and Subwatershed Studies have been undertaken, meander belt widths, riparian linkage and enhancement areas, and fisheries setbacks can also be used where they extend beyond any required 30m vegetation protection zone as they are based on field investigations. Areas where Watershed and Subwatershed Studies have been completed that define meander belt widths and fisheries setbacks are discussed in Section 5.3.2.

**Ground Water Features**

While the shapefiles provided by the Region and Conservation Authorities address all surface water features, they do not address ground water features. The following Source Protection Area Assessment Reports were reviewed to identify available mapping information related to ground water features:

- Assessment Report, Halton Region, Source Protection Area (Halton-Hamilton Source Protection Committee, October 2017)
- Approved Updated Assessment Report, Credit Valley Source Protection Area (CTC Source Protection Committee, July 2015)
- Approved Assessment Report, Grand River Source Protection Area (Lake Erie Source Protection Committee, November 2015)

The Assessment Reports each address a respective watershed: Halton Watershed, Grand River Watershed, and Credit Valley Watershed. The Assessment Reports were reviewed to identify existing mapping information for ground water features and assessed based on the data characterization criteria. A detailed review of the ground water feature mapping data for each Assessment Report is provided in Appendix 3, Tables 3-5.

Collectively, the three Assessment Reports provide mapping information for the entirety of Halton Region. All mapping information has been identified as Class 1 Data. Table 4 identifies the groundwater information that is available for incorporation into WRS mapping for the Region.

**TABLE 4: GROUND WATER FEATURE MAPPING DATA AVAILABILITY BASED ON REGION-WIDE DATA**

| Groundwater Feature Required per Policy | Groundwater Feature Available Mapping Data | Spatial Extent |
|---|---|---|
| Significant surface water contribution areas | Significant Groundwater Recharge Areas (SGRAs) | Region-wide |
| Seepage areas and springs, discharge areas | Unavailable | Unavailable: Credit Valley Watershed, Grand River Watershed, Conservation Halton Watershed |
| Significant groundwater recharge areas (ecological and drinking water source) | Significant Groundwater Recharge Areas (SGRA's) | Region-wide* |
| Aquifers and unsaturated zones and highly vulnerable aquifers | Highly Vulnerable Aquifers (HVA's) | Region-wide |

**Available Region-wide with the exception of a portion of the Credit Valley Watershed.*

The Source Protection Area Assessment Reports provide the majority of the groundwater mapping information required for the WRS mapping, with the exception of the following:

Groundwater Discharge Areas are not delineated within any of the watersheds. Groundwater Discharge Areas may be determined from numerical groundwater modelling or potentially monitoring programs. It is suggested that the Region coordinate with the respective Conservation Authorities in order to gain or develop these data to resolve this data gap.

The Significant Groundwater Recharge Areas mapping with the Credit Valley Watershed excludes the portion of the watershed that relies exclusively on Lake Ontario for drinking water. It is suggested that the Region consult with Credit Valley Conservation to confirm whether there are any additional Significant Groundwater Recharge Areas near Lake Ontario that should be considered in the development of the WRS mapping.

Because significant surface water contribution areas are, by definition, generally associated with headwater catchments that contribute to baseflow volumes which are significant to the overall surface water flow volume, significant groundwater recharge areas in combination with watercourse and HDF mapping may be used as a surrogate to identify significant surface water contribution areas. As such, significant surface water contribution areas have been considered as headwaters that occur in Significant Groundwater Recharge Areas (SGRAs). Delineating significant surface water contribution areas requires the analysis of headwaters that occur in SGRAs, which has not been completed as part of this phase of the exercise. SGRA mapping information, in combination with watercourse and HDF mapping, has been identified as the suitable surrogate data for significant surface water contribution areas.

### 5.4.2 Area Specific Information: Watershed and Subwatershed Studies

Through consultation with the Region, local municipalities and Conservation Authorities a total of 19 Watershed and Subwatershed Studies were identified for review; 13 studies were deemed relevant to the development of the WRS mapping and reviewed accordingly. The studies were evaluated using the same approach as for the Region-wide information; the mapping information was categorized according to the subject surface water features and groundwater features (including key hydrologic areas and their functions) that are required to be identified as part of the WRS as per provincial policy. Following the identification of the feature, the data were then assessed to determine if they are of acceptable quality to be incorporated into WRS mapping for the Region.

Table 5 identifies the Watershed and Subwatershed Studies that were reviewed as part of this mapping audit, as well as the associated Data Class for each Study.

**TABLE 5: WATERSHED AND SUBWATERSHED STUDIES REVIEWED**

| Geographic Location | No. | Watershed/ Subwatershed Study | Data Class |
|---|---|---|---|
| Conservation Halton Watershed | 1 | Bronte Creek Watershed Study (2002) (Conservation Halton) | Class 2 Data |
| | 2 | North Shore Watershed Study (2006) | Class 2 Data |
| The Town of Halton Hills | 3 | Black Creek Subwatershed Study Background Report (2009) | Class 1 Data |
| | 4 | Silver Creek Subwatershed Study (2010) | Class 1 Data |
| | 5 | DRAFT Premier Gateway Scoped Subwatershed Study (2018) | Class 1 Data |
| | 6 | DRAFT Vision Georgetown Subwatershed Study (2017) | Class 1 Data |
| | 7 | 401 Corridor Integrated Planning Project, Scoped Subwatershed Plan (2000) | Class 2 Data |
| The Town of Milton | 8 | Indian Creek/Sixteen Mile Creek Sherwood Survey Subwatershed Management Study (2004) | Class 2 Data |
| | 9 | Sixteen Mile Creek, Areas 2 & 7 Subwatershed Update Study (2015) | Class 1 Data |
| | 10 | DRAFT South Milton Urban Expansion Area Subwatershed Study (2018) | Class 1 Data |
| The Town of Oakville | 11 | North Oakville Creeks Subwatershed Study (2006) | Class 1 Data |
| The City of Burlington | 12 | Sheldon Creek Watershed Master Plan (1993) | Class 2 Data |
| | 13 | DRAFT Tremaine And Dundas Subwatershed Study Update (May 2018) | Class 1 Data |

The following Watershed and Subwatershed Studies were not available for review at this stage in the exercise. These studies may be considered for review in the future.

Eramosa River/Blue Springs Creek Subwatershed Study (1999)

Black Creek Subwatershed Study Background Report Phase 3

Methodology

Figure 4 illustrates area-specific studies completed in Halton Region, where Watershed and Subwatershed studies have been completed, and provides detailed information in addition to that addressed in the Region-wide mapping information. The study area boundaries have been delineated to identify where this information is available and categorized as Class 1 Data or Class 2 Data. A detailed review of each study and the identification of available mapping information for subject surface water features and groundwater features is provided in Appendix 4, Tables 1-13. The purpose of this review is to provide the Region with an overview of the existing mapping information that is available. Figure 4 identifies potential sources of mapping information based on the quality of data for the Region's consideration to incorporate into WRS mapping in the future.

Key Findings

Headwater Drainage Features (HDFs) are the key surface water features that are described in detail in the studies, but as the studies do not cover the entire Region, the data gap is only partially resolved. Accordingly, studies that were identified as Class 1 Data, and which were completed in the last 5 years (following the HDF guidelines prepared in 2014 by CVC and TRCA), provide pertinent information for consideration in the WRS mapping.

The classification of watercourses provides additional detail regarding the Region's WRS system with respect aquatic habitat, thermal regimes and reach stability. Meander belt widths and fisheries setbacks are identified in several studies (ref. Appendix 3, Tables 6-13), and provide the primary surrogate data for riparian areas and vegetated buffer zones.

Studies that have been identified as Class 1 Data are available for incorporation into the WRS mapping. Studies that have been identified as Class 2 Data provide information that is worthy of consideration in the development of the WRS mapping, however, do not meet one of the three data characterization criteria. Studies that are categorized as Class 1 Data and have been completed in an area following the most recent update of Region-wide mapping information from the respective area Conservation Authority (i.e. floodplain mapping, Source Protection Area Assessment Report) provide the most useful information.

## 5.5 Options

Given the substantial overlap between the features that comprise the Natural Heritage System and the Water Resource System, trying to combine them on a single map or schedule will be confusing and graphically challenging. For this reason, it is suggested that the Water Resource System be illustrated on its own Map in the ROP.

Given that several key hydrologic features and areas are shared between the Natural Heritage System and Water Resource System (refer to Section 3.6), it is suggested that these features be represented in a consistent manner on the respective maps to clearly identify the overlap.

Additionally, the mapping should highlight that these key hydrologic features and areas are subject to the policies associated with both Systems.

### 5.5.1 Strategies for Advancing the WRS Mapping

1. Compile Region-wide Existing Mapping Information and Address Gaps through Policy

Compile the existing spatial data (i.e. shapefiles) for surface water features and ground water features to create a unique Map in the ROP that is specific to the Water Resource System.

Any key hydrologic features or areas of the WRS that are required to be identified as per provincial policy, however, cannot be addressed due to information gaps, would be addressed through policy similar to 116.1 (and 118.3), which allow refinements to the WRS and specifies how they will be undertaken.

Strategy 1 follows the approach of the NHS.

2. Compile Region-wide Existing Mapping Information and Address Gaps through Reference to Area-Specific Studies

The same approach could be applied as Strategy 1: compile the existing mapping data and address information gaps through policy.

In addition, the Halton ROP Water Resource System Map would identify areas where Area-Specific Studies have been undertaken (i.e., watershed and sub-watershed studies) and direct the reader to refer to these studies for more complete mapping of the WRS.

Strategy 2 would result in a WRS Map that would appear differently than Map 1G (the NHS Map) as it would include study area boundaries (similar to Figure 4). It would, however, ensure the reader is working with the most current information available for the WRS, while reducing the amount of effort required by the Region with respect to shapefile refinements.

3. Compile Region-wide Existing Mapping Information and Digitize Area-Specific Study Information for Incorporation

The same approach could be applied as Strategy 1: compile the existing mapping data and address information gaps through policy.

In addition, the information in the area-specific studies that is deemed worthy for incorporation by the Region would be digitized and incorporated into the Halton ROP WRS Map.

Strategy 3 would result in a WRS Map that includes the most current information available for the WRS on one comprehensive map. This strategy requires the greatest amount of effort on behalf of the Region, as significant refinements will be required for the existing Region-wide mapping information (i.e., shapefiles). This strategy would require continuous refinements to the WRS Schedule to ensure the mapping information remains current as additional watershed and sub-watershed studies are undertaken in the future. gr

### 5.5.2 Additional Options to Support the Development of the WRS Mapping

Obtain Missing Data

Groundwater Discharge Areas:

The Region should coordinate with the Conservation Authorities to receive or develop groundwater discharge area mapping information.

Significant Groundwater Recharge Areas

The Region should coordinate with Credit Valley Conservation to confirm whether there are any additional Significant Groundwater Recharge Areas near Lake Ontario that should be considered in the development of the WRS mapping.

Floodplain Mapping:

The Region should coordinate with the Conservation Authorities to obtain current floodplain mapping for each jurisdiction.

Source Protection Area Assessment Reports Mapping Information (Ground water Features)

The Region should coordinate with the Conservation Authorities to obtain the mapping information in digital format of the groundwater features addressed in the Assessment Reports.

Watershed and Sub-watershed Studies

The watershed and sub-watershed studies that were reviewed all exist in PDF or paper copy format, meaning digital format for the mapping data was not obtained as part of this review. Watershed and sub-watershed study mapping information were still considered to be Class 1 Data if the Project Team was able to clearly identify that the data were produced in GIS shapefile format and are of recent vintage such that they will be compatible with current GIS software.

The Region should coordinate with the Conservation Authorities, local municipalities, and consultants that completed the watershed and subwatershed studies to obtain mapping information in digital format.

Continue Collecting Information on Headwater Drainage Features

Best practices have evolved in recent practice to also consider the headwater drainage features (HDFs) classification protocol to characterize and evaluate these features and establish management requirements accordingly. The Region should continue collecting HDF mapping information in order to fill the existing data gap in Regulated Watercourse mapping information.

The Region should consider developing Subwatershed Study Guidelines, a guiding document similar to the Environmental Impact Assessment Guidelines, to ensure HDF assessments are included in sub-watershed studies.

# SECTION 6.0 Summary

Each section in this report provides options and/or suggestions to advance the natural heritage mapping component of the Regional Official Plan Review. The aspects of the mapping include:

- refinements to the Regional NHS based on "additional areas" identified in the Growth Plan NHS;
- options for addressing mapping of the Centres for Biodiversity;
- review of the North Aldershot area with potential refinements to the RNHS;
- suggestions for mapping the Cootes to Escarpment EcoPark System;
- relationship of the Regional NHS and proposed Water Resource System; and
- updates to the Regional NHS resulting from planning decisions and staff refinements.

The most important consideration resulting from the analysis of the NHS mapping is the need to undertake a comprehensive update of the NHS mapping, including a review of the policies with define Halton's NHS. This should include:

- review of features and functions identified in current Provincial plans and policy documents to ensure that Halton's NHS reflects current Provincial direction;
- identification of the most current data sources for developing updated base layers to use for revised NHS mapping, including the appropriateness of proxy information for features for which data are not available;
- incorporation of mapping updates based on land uses decisions and other mapping considerations (e.g., revisions to North Aldershot Planning Area, review of the Centres for Biodiversity, consideration of the Cootes to Escarpment EcoPark System boundaries, etc.);
- review of buffers, linkages and enhancements based on the updated base information and mapping updates.

Regarding the Water Resource System, the Region should identify which approach to the WRS Mapping is most suitable for inclusion in the ROP, taking into consideration the previous NHS Technical Memorandums completed as part of this ROP process. The identification of the preferred strategy for the creation of the WRS Mapping will guide the future phases of this exercise, including the collection process of relevant data and mapping information refinements.

The next steps to develop the WRS mapping will vary depending on the strategy selected, however, generally will include:

- collection of the necessary data;
- digitization of data if necessary;
- preparation of the mapping and base data;
- policy development to support the mapping; and
- incorporation into the Regional Official Plan.

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Appendix 1: Growth Plan NHS mapping analysis results including the characterization of patches and direction to the Region.

| NS_ID | Size (ha) | Coding | Comments | Settlement Area designation? | Direction | Mapping discrepancy (y/n)? |
|---|---|---|---|---|---|---|
| **3** | 15.11 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **13** | 8.73 | 5-10 ha | Settlement Area designation. | y | remove | n |
| **15** | 4.70 | 2-5 ha | This area appears to be within Cityview Park in Burlington and was omitted from the RNHS. However, the reason for cutout cannot be determined (See NS_id 1897) | n | retain | y |
| **24** | 11.90 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **30** | 16.85 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **40** | 27.96 | Greater than 10 ha | Settlement Area designation. | y | remove | n |
| **49** | 1.40 | 1-2 ha | Mapping discrepancy. | n | requires internal discussion | y |
| **72** | 6.98 | 5-10 ha | Settlement Area designation. Kilbride. | y | remove | n |
| **118** | 40.67 | Greater than 10 ha | Settlement Area designation. Campbellville. | y | remove | n |
| **124** | 1.07 | 1-2 ha | Mapping discrepancy. | n | requires internal discussion | y |
| **126** | 74.60 | Greater than 10 ha | Former Quarry. Appears to be redesignated as Escarpment Protection Area. | n | retain | y |
| **129** | 14.74 | Greater than 10 ha | Former Clay Quarry on Tremaine Road (East of Kelso). Appears to be redesginated as Escarpment Protection Area. | n | retain | y |
| **143** | 91.59 | Greater than 10 ha | Dufferin Quarry east of sixth line. Identified as EPA but appears to be active quarry. | n | retain | y |
| **144** | 1.38 | 1-2 ha | Mapping discrepancy between edge of RNHS and GP boundary in Burlington. North side of Dundas Rd (Hwy 5) | n | requires internal discussion | y |
| **156** | 5.82 | 5-10 ha | Settlement Area designation. Adjacent to Mount Nemo. Large estate development. | y | remove | n |

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|---|---|---|---|---|---|---|
| **165** | 11.05 | Greater than 10 ha | Settlement area designation. Largely forested area with couple of developments. Campbellville settlement/hamlet designation. | y | remove | n |
| **166** | 2.00 | 2-5 ha | Settlement area designation. Largely forested area with couple of developments. Campbellville settlement/hamlet designation. | y | remove | n |
| **170** | 2.65 | 2-5 ha | Settlement area designation. Largely forested area with couple of developments. Campbellville settlement/hamlet designation. | y | remove | n |
| **180** | 1.21 | 1-2 ha | Mapping discrepancy between edge of RNHS and GP boundary. | n | requires internal discussion | y |
| **181** | 1.12 | 1-2 ha | mapping discrepancy within Hilton Falls CA. Gap between the edges of the RNHS and the GP NHS in the ROP. | n | retain | y |
| **182** | 17.36 | Greater than 10 ha | Gap in escarpment in Dufferin Quarry. It may need to be modified to exclude access road to quarry. Designated as Esacarpment Natural Area in NEP. | n | retain | n |
| **185** | 50.35 | Greater than 10 ha | Dufferin Quarry. Designated as Escarpment Natural Area in the NEP. Appears to be outside the area licensed for extraction. | n | retain | n |
| **195** | 1.29 | 1-2 ha | Mapping discrepancy between the edge of the RNHS and the GP NHS adjacent to the north part of the Dufferin Quarry. | n | requires internal discussion | y |
| **222** | 1.52 | 1-2 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **243** | 7.75 | 5-10 ha | Settlement Area designation. Lowville. Some development and park land. | y | remove | n |
| **251** | 1.93 | 1-2 ha | Settlement Area designation. Lowville. Appears to be urban park. | y | remove | n |
| **252** | 1.81 | 1-2 ha | Settlement Area designation. Lowville. Appears to be urban park. | y | remove | n |
| **296** | 15.65 | Greater than 10 ha | Natural area covering portion of Limestone Creek. Adjacent to quarry | n | retain | y |
| **378** | 1.10 | 1-2 ha | Chateau Common development. Area has been developed but is outside settlement area boundary that we were provided. | n | remove | n |

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|---|---|---|---|---|---|---|
| **614** | 2.16 | 2-5 ha | North Aldershot policy area. Differ to North Aldershot discussion. Notre Dame Motherhouse. Escarpment Natural Area designation in NEP. See North Aldershot discussion. | n | retain | n |
| **658** | 3.53 | 2-5 ha | Settlement Area designation. North of Halton Hills just east of Trafalgar Road (Silvercreek community?) | y | remove | n |
| **719** | 3.10 | 2-5 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **745** | 5.05 | 5-10 ha | Mapping discrepancy. Appears to be Growth Plan algorithm includes mostly road and roadside development (along Nassagawya-Puslinch Townline). Natural features are within Regions NHS. | n | requires internal discussion | y |
| **746** | 3.30 | 2-5 ha | Mapping discrepancy with the Regional boundary. Just west of Eden Mills. | n | requires internal discussion | y |
| **774** | 2.20 | 2-5 ha | Area is already within RNHS and key feature layer (i.e., is not an additional area) | n | retain | n |
| **823** | 4.40 | 2-5 ha | Settlement Area designation wtihin Limehouse. Doesn't align perfectly within settlement boundary area. | y | remove | n |
| **827** | 3.58 | 2-5 ha | Settlement Area designation. Within settlement area boundary just north of Halton Hills. | y | remove | n |
| **1108** | 1.48 | 1-2 ha | North Aldershot policy area. Differ to North Aldershot discussion. Estate property surrounded by RNHS. | n | retain | n |
| **1109** | 8.65 | 5-10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **1110** | 5.16 | 5-10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **1111** | 13.95 | Greater than 10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Connects Sixteen Mile Creek to the Niagara Escarpment. | n | retain | n |
| **1114** | 25.24 | Greater than 10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Connects Sixteen Mile Creek to the Niagara Escarpment. | n | retain | n |

| | | | | | | |
|---|---|---|---|---|---|---|
| **1116** | 8.78 | 5-10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Connects Sixteen Mile Creek to the Niagara Escarpment. | n | retain | n |
| **1118** | 6.27 | 5-10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Connects Sixteen Mile Creek to the Niagara Escarpment. | n | retain | n |
| **1121** | 8.83 | 5-10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Connects Sixteen Mile Creek to the Niagara Escarpment. | n | retain | n |
| **1122** | 49.74 | Greater than 10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Partially connects Sixteen Mile Creek to the Niagara Escarpment and partial connection to SW Georgetown (See NS_id 1129). | n | requires internal discussion | n |
| **1127** | 109.65 | Greater than 10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Partially connects Sixteen Mile Creek to the Niagara Escarpment and partial connection to SW Georgetown (See NS_id 1129). | n | requires internal discussion | n |
| **1129** | 59.61 | Greater than 10 ha | Part of the 'Y' west of Trafalgar Rd in Halton Hills. Partially connects Sixteen Mile Creek to the Niagara Escarpment and partial connection to SW Georgetown (See NS_id 1129). | n | requires internal discussion | n |
| **1897** | 3.21 | 2-5 ha | This area appears to be within Cityview Park in Burlington and was omitted from the RNHS. However, the reason for cutout cannot be determined (see NS_id15). | n | retain | y |
| **1969** | 13.47 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **1970** | 13.73 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **1971** | 11.97 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **1972** | 8.71 | 5-10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |
| **1973** | 37.31 | Greater than 10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |

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|---|---|---|---|---|---|---|
| **1974** | 8.52 | 5-10 ha | North Aldershot policy area. Differ to North Aldershot discussion. | n | retain | n |

## Appendix 2: Summary table of OMB decisions, planning applications, special council permits and staff refinements for Halton's NHS.

| NS_ID | GIS_id | Decision | Change NHS | Comments | X_Coord | Y_Coord | area | ha | type | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| OMB-1 | OMB-A-1 | No Change | No | Already in RNHS - No changes required | 591499 | 4797840 | 29511.63 | 2.95 | OMB | Don Johnson OMB Settlement |
| OMB-2 | OMB-A-2 | No Change | No | Already in RNHS - No changes required | 591094 | 4805055 | 33937.81 | 3.39 | OMB | Nelson Extension OMB Settlement |
| OMB-3 | OMB-A-3 | No Change | No | Already in RNHS - No changes required | 581561 | 4822793 | 528946.32 | 52.89 | OMB | Dufferin Milton Quarry Extension |
| SF-1 | SF-A-1 | Addition | Yes | Added to RNHS - Stand alone area - Linkage required - Buffer added - NS check required | 591774 | 4827090 | 6868.21 | 0.69 | Staff Refinements | HH Rural Property Review |
| SF-2 | SF-R-2 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remianing woodlands | 591717 | 4827244 | 13671.01 | 1.37 | Staff Refinements | HH Rural Property Review |
| SF-3 | SF-R-3 | Removal | Yes | Removed from RNHS - Buffer removed - Buffers added to remaining woodlands - Sliver - NS check required | 591901 | 4827224 | 1699.63 | 0.17 | Staff Refinements | HH Rural Property Review |
| SF-4 | SF-R-4 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 591970 | 4827249 | 5382.84 | 0.54 | Staff Refinements | HH Rural Property Review |
| SF-5 | SF-R-5 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 589096 | 4827154 | 5166.84 | 0.52 | Staff Refinements | HH Rural Property Review |
| SF-6 | SF-A-6 | No Change | No | NS check required | 588548 | 4827707 | 61.54 | 0.01 | Staff Refinements | HH Rural Property Review |
| SF-7 | SF-R-7 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 588630 | 4827626 | 12479.42 | 1.25 | Staff Refinements | HH Rural Property Review |
| SF-8 | SF-R-8 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 591174 | 4826520 | 1868.27 | 0.19 | Staff Refinements | HH Rural Property Review |
| SF-9 | SF-R-9 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 591251 | 4826612 | 4512.27 | 0.45 | Staff Refinements | HH Rural Property Review |
| SF-10 | SF-R-10 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 591083 | 4826818 | 3794.29 | 0.38 | Staff Refinements | HH Rural Property Review |
| SF-11 | SF-R-11 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 586274 | 4822287 | 2158.07 | 0.22 | Staff Refinements | HH Rural Property Review |
| SF-12 | SF-R-12 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 586327 | 4822188 | 16.35 | 0.00 | Staff Refinements | HH Rural Property Review |
| SF-13 | SF-R-13 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 586304 | 4822229 | 968.26 | 0.10 | Staff Refinements | HH Rural Property Review |
| SF-14 | SF-R-14 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 590551 | 4829625 | 26034.62 | 2.60 | Staff Refinements | HH Rural Property Review |
| SF-15 | SF-R-15 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 590762 | 4829422 | 7941.41 | 0.79 | Staff Refinements | HH Rural Property Review |
| SF-16 | SF-R-16 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 591624 | 4828579 | 2496.89 | 0.25 | Staff Refinements | HH Rural Property Review |
| SF-17 | SF-R-17 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 591753 | 4828437 | 12041.86 | 1.20 | Staff Refinements | HH Rural Property Review |
| SF-18 | SF-R-18 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 592718 | 4827286 | 4257.71 | 0.43 | Staff Refinements | HH Rural Property Review |
| SF-19 | SF-R-19 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 593252 | 4826937 | 8992.98 | 0.90 | Staff Refinements | HH Rural Property Review |
| SF-20 | SF-A-20 | No Change | No | NS check required | 593256 | 4826993 | 344.05 | 0.03 | Staff Refinements | HH Rural Property Review |

| NS_ID | GIS_id | Decision | Change NHS | Comments | X_Coord | Y_Coord | area | ha | type | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| SF-21 | SF-R-21 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 593514 | 4826669 | 11824.80 | 1.18 | Staff Refinements | HH Rural Property Review |
| SF-22 | SF-R-22 | Removal | Yes | Removed from RNHS - NS check required | 593091 | 4826913 | 4962.47 | 0.50 | Staff Refinements | HH Rural Property Review |
| SF-23 | SF-R-23 | Removal | Yes | Removed from RNHS - Underlying RNHS component feature - Buffer changed | 588128 | 4827603 | 187.75 | 0.02 | Staff Refinements | HH Rural Property Review |
| SF-24 | SF-R-24 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 588146 | 4827702 | 623.80 | 0.06 | Staff Refinements | HH Rural Property Review |
| SF-25 | SF-R-25 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 588167 | 4827664 | 1796.15 | 0.18 | Staff Refinements | HH Rural Property Review |
| SF-26 | SF-R-26 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 594632 | 4827325 | 602.88 | 0.06 | Staff Refinements | HH Rural Property Review |
| SF-27 | SF-R-27 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 594466 | 4827097 | 1435.74 | 0.14 | Staff Refinements | HH Rural Property Review |
| SF-28 | SF-R-28 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 594536 | 4826963 | 2590.97 | 0.26 | Staff Refinements | HH Rural Property Review |
| SF-29 | SF-A-29 | Addition | Yes | Added to RNHS - Buffer added - Expands area already there | 594525 | 4827171 | 1505.32 | 0.15 | Staff Refinements | HH Rural Property Review |
| SF-30 | SF-A-30 | No Change | No | RNHS Unchanged - No changes required | 590170 | 4826213 | 542.72 | 0.05 | Staff Refinements | HH Rural Property Review |
| SF-31 | SF-R-31 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remianing woodlands - Stand alone woodland - NS check required | 590078 | 4826184 | 8624.13 | 0.86 | Staff Refinements | HH Rural Property Review |
| SF-32 | SF-R-32 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 587547 | 4822852 | 1326.69 | 0.13 | Staff Refinements | HH Rural Property Review |
| SF-33 | SF-R-33 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 587732 | 4822502 | 1323.16 | 0.13 | Staff Refinements | HH Rural Property Review |
| SF-34 | SF-R-34 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 587766 | 4822576 | 9380.13 | 0.94 | Staff Refinements | HH Rural Property Review |
| SF-35 | SF-R-35 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 582606 | 4831640 | 914.83 | 0.09 | Staff Refinements | Tracking SheetHeather/Ron |
| SF-36 | SF-R-36 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 585159 | 4817788 | 4563.89 | 0.46 | Staff Refinements | Tracking Sheet Jason |
| SF-37 | SF-R-37 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 589519 | 4804380 | 421.00 | 0.04 | Staff Refinements | Tracking Sheet Ron |
| SF-38 | SF-R-38 | No Change | No | RNHS Unchanged - Underlying RNHS component feature | 586550 | 4826031 | 991.24 | 0.10 | Staff Refinements | Tracking Sheet Heather |
| SF-39 | SF-R-39 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 581194 | 4835500 | 322.58 | 0.03 | Staff Refinements | Tracking Sheet Ron |
| SF-40 | SF-R-40 | No Change | No | RNHS Unchanged - Outside of RNHS - NS check required | 575673 | 4833051 | 10644.62 | 1.06 | Staff Refinements | Tracking Sheet Heather |
| SF-41 | SF-R-41 | No Change | No | RNHS Unchanged - Outside of RNHS - NS check required | 605728 | 4808964 | 14654.32 | 1.47 | Staff Refinements | Tracking Sheet Heather |
| SF-42 | SF-A-42 | Addition | Yes | Added to RNHS - Expands area already there | 602366 | 4812280 | 132966.80 | 13.30 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-43 | SF-A-43 | Addition | Yes | Added to RNHS - Expands area already there - Sliver - NS check required | 600414 | 4812765 | 991.22 | 0.10 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-44 | SF-A-44 | No Change | No | RNHS Unchanged - No changes required | 598170 | 4813451 | 19292.47 | 1.93 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-45 | SF-A-45 | No Change | No | RNHS Unchanged - No changes required | 598091 | 4813929 | 85.57 | 0.01 | Staff Refinements | Visual Inter(2017 Ortho) |

| NS_ID | GIS_id | Decision | Change NHS | Comments | X_Coord | Y_Coord | area | ha | type | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| SF-46 | SF-A-46 | No Change | No | RNHS Unchanged - No changes required | 597919 | 4813947 | 143.35 | 0.01 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-47 | SF-A-47 | No Change | No | RNHS Unchanged - No changes required | 597940 | 4813957 | 3351.98 | 0.34 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-48 | SF-A-48 | No Change | No | RNHS Unchanged - No changes required | 597519 | 4814952 | 297594.30 | 29.76 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-49 | SF-A-49 | No Change | No | RNHS Unchanged - No changes required | 599833 | 4815842 | 0.42 | 0.00 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-50 | SF-A-50 | No Change | No | RNHS Unchanged - No changes required | 599874 | 4815996 | 172.61 | 0.02 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-51 | SF-A-51 | No Change | No | RNHS Unchanged - No changes required | 599897 | 4816155 | 33.32 | 0.00 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-52 | SF-A-52 | No Change | No | RNHS Unchanged - No changes required | 599848 | 4816254 | 228.82 | 0.02 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-53 | SF-A-53 | No Change | No | RNHS Unchanged - No changes required | 599895 | 4816358 | 229.17 | 0.02 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-54 | SF-A-54 | No Change | No | RNHS Unchanged - No changes required | 599931 | 4816395 | 1896.29 | 0.19 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-55 | SF-A-55 | No Change | No | RNHS Unchanged - No changes required | 599877 | 4816533 | 243.70 | 0.02 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-56 | SF-A-56 | No Change | No | RNHS Unchanged - No changes required | 599366 | 4816417 | 240.53 | 0.02 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-57 | SF-A-57 | No Change | No | RNHS Unchanged - No changes required | 599278 | 4816423 | 10.04 | 0.00 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-58 | SF-A-58 | No Change | No | RNHS Unchanged - No changes required | 599196 | 4816429 | 141.62 | 0.01 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-59 | SF-A-59 | Addition | Yes | Added to RNHS - Expands area already there - Sliver - NS check required | 598386 | 4813362 | 1890.99 | 0.19 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-60 | SF-A-60 | No Change | No | RNHS Unchanged - No changes required | 598959 | 4816851 | 4609.41 | 0.46 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-61 | SF-A-61 | No Change | No | RNHS Unchanged - No changes required | 599206 | 4817758 | 58938.44 | 5.89 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-62 | SF-A-62 | No Change | No | RNHS Unchanged - No changes required | 598732 | 4819320 | 40481.13 | 4.05 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-63 | SF-A-63 | No Change | No | RNHS Unchanged - No changes required | 597156 | 4807582 | 1416.19 | 0.14 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-64 | SF-A-64 | No Change | No | RNHS Unchanged - No changes required | 597001 | 4807552 | 830.58 | 0.08 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-65 | SF-A-65 | No Change | No | RNHS Unchanged - No changes required | 596948 | 4807650 | 559.42 | 0.06 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-66 | SF-A-66 | No Change | No | RNHS Unchanged - No changes required | 597122 | 4807811 | 2675.26 | 0.27 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-67 | SF-A-67 | No Change | No | RNHS Unchanged - No changes required | 597024 | 4807902 | 27.73 | 0.00 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-68 | SF-A-68 | No Change | No | RNHS Unchanged - No changes required | 596728 | 4808079 | 9743.74 | 0.97 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-69 | SF-A-69 | Addition | Yes | Added to RNHS - Expands area already there | 596083 | 4807833 | 32230.58 | 3.22 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-70 | SF-A-70 | No Change | No | RNHS Unchanged - No changes required | 595207 | 4808368 | 49451.95 | 4.95 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-71 | SF-A-71 | Addition | Yes | Added to RNHS - Stand alone area - NS check required | 576857 | 4830980 | 86737.32 | 8.67 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-72 | SF-A-72 | No Change | No | RNHS Unchanged - No changes required | 591453 | 4833762 | 30168.37 | 3.02 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-73 | SF-A-73 | No Change | No | RNHS Unchanged - No changes required | 589422 | 4834442 | 66140.68 | 6.61 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-74 | SF-A-74 | No Change | No | RNHS Unchanged - No changes required | 587746 | 4834977 | 9551.42 | 0.96 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-75 | SF-A-75 | No Change | No | RNHS Unchanged - No changes required | 587228 | 4834968 | 1751.30 | 0.18 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-76 | SF-A-76 | Addition | Yes | Added to RNHS - Expands area already there | 586816 | 4835388 | 16282.86 | 1.63 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-77 | SF-A-77 | Addition | Yes | Added to RNHS - Expands area already there - Sliver - NS check required | 586522 | 4835978 | 746.92 | 0.07 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-78 | SF-A-78 | Addition | Yes | Added to RNHS - Expands area already there - Sliver - NS check required | 586578 | 4836004 | 832.47 | 0.08 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-79 | SF-A-79 | Addition | Yes | Added to RNHS - Expands area already there | 586495 | 4836264 | 737.96 | 0.07 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-80 | SF-A-80 | Addition | Yes | Added to RNHS - Expands area already there | 586321 | 4836382 | 5819.94 | 0.58 | Staff Refinements | Visual Inter(2017 Ortho) |
| SF-81 | SF-A-81 | Addition | Yes | Added to RNHS - Expands area already there - Sliver - NS check required | 586147 | 4836957 | 5648.58 | 0.56 | Staff Refinements | Visual Inter(2017 Ortho) |

| NS_ID | GIS_id | Decision | Change NHS | Comments | X_Coord | Y_Coord | area | ha | type | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| SF-82 | SF-REV-82 | No Change | No | NS check required | 594324 | 4830322 | 45250.28 | 4.53 | Staff Refinements | Tracking Sheet |
| SF-83 | SF-R-83 | Removal | Yes | Removed from RNHS - Buffer removed - Buffer added to remaining woodlands | 583102 | 4833033 | 5781.91 | 0.58 | Staff Refinements | Tracking Sheet (Ron) |
| SCP-1 | SCP-R-1 | Removal | Yes | Removed from Greenbelt Area | 576360 | 4828499 | 4469.80 | 0.45 | Special Council Permits | (Moreira) 13160 NASSAGAWEYA-ESQUESING TOWNLINE |
| SCP-2 | SCP-R-2 | Removal | Yes | Removed from Greenbelt Area | 569240 | 4824034 | 1768.33 | 0.18 | Special Council Permits | (Freeman) 14125 First Line Nassagaweya |
| SCP-3 | SCP-R-3 | Removal | Yes | Removed from Greenbelt Area | 574158 | 4819757 | 7964.74 | 0.80 | Special Council Permits | (Noorzad) 2081 20 Side Rd |
| SCP-4 | SCP-R-4 | Removal | Yes | Removed from Greenbelt Area | 580672 | 4825348 | 4514.41 | 0.45 | Special Council Permits | (Proposed) 6457 17 Side Rd |
| SCP-5 | SCP-R-5 | Removal | Yes | Removed from Greenbelt Area | 571731 | 4819939 | 2569.36 | 0.26 | Special Council Permits | (Spears) 12532 Nassagaweya Puslinch Townline |
| SCP-6 | SCP-R-6 | Removal | Yes | Removed from Greenbelt Area | 568943 | 4822919 | 2954.19 | 0.30 | Special Council Permits | (Proposed) 1135 Arkell Rd |
| SCP-7 | SCP-R-7 | Removal | Yes | Removed from Greenbelt Area | 577968 | 4815717 | 5066.99 | 0.51 | Special Council Permits | (Robson) 10205 First Line Nassagaweya |
| PA-1 | PA-C-A-1 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 599307 | 4805024 | 43234.59 | 4.32 | Planning Applications | |
| PA-2 | PA-SP-A-1 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 603139 | 4816418 | 1509.36 | 0.15 | Planning Applications | Site Plan Application |
| PA-3 | PA-SP-A-2 | Addition | Yes | Added to RNHS - Extension of Floodplain (Conservation Halton) | 597647 | 4823915 | 40537.82 | 4.05 | Planning Applications | Site Plan Application |
| PA-4 | PA-SP-R-1 | Removal | Yes | Removed from RNHS - Area developed | 597611 | 4804240 | 2390.49 | 0.24 | Planning Applications | Halton Region |
| PA-5 | PA-SP-R-2 | Removal | Yes | Removed from RNHS - Area developed | 598148 | 4804376 | 16166.16 | 1.62 | Planning Applications | Halton Region |
| PA-6 | PA-SP-R-3 | Removal | Yes | Removed from RNHS - Area developed | 595670 | 4805599 | 0.01 | 0.00 | Planning Applications | Halton Region |
| PA-7 | PA-SP-R-4 | Removal | Yes | Removed from RNHS - Area developed | 599641 | 4805586 | 6351.39 | 0.64 | Planning Applications | Halton Region |
| PA-8 | PA-SP-R-5 | Removal | Yes | Removed from RNHS - Area developed | 595505 | 4805604 | 10234.95 | 1.02 | Planning Applications | Halton Region |
| PA-9 | PA-SP-R-6 | Removal | Yes | Removed from RNHS - Area developed | 595896 | 4805999 | 9265.51 | 0.93 | Planning Applications | Halton Region |
| PA-10 | PA-SP-R-7 | Removal | Yes | Removed from RNHS - Area developed | 598584 | 4806233 | 5857.82 | 0.59 | Planning Applications | Halton Region |
| PA-11 | PA-SP-R-8 | Removal | Yes | Removed from RNHS - Area developed - NS check - Possible stream linkage | 596975 | 4806323 | 25736.65 | 2.57 | Planning Applications | Halton Region |
| PA-12 | PA-SP-R-9 | Removal | Yes | Removed from RNHS - Area developed | 595177 | 4806996 | 3981.77 | 0.40 | Planning Applications | Halton Region |
| PA-13 | PA-SP-R-10 | Removal | Yes | Removed from RNHS - Area developed - NS check - Buffer requirement | 596103 | 4807512 | 10795.63 | 1.08 | Planning Applications | Halton Region |
| PA-14 | PA-SP-R-11 | Removal | Yes | Removed from RNHS - Area developed | 598906 | 4808421 | 21695.44 | 2.17 | Planning Applications | Halton Region |
| PA-15 | PA-SP-R-12 | Removal | Yes | Removed from RNHS - Area developed | 598757 | 4809082 | 41.59 | 0.00 | Planning Applications | Halton Region |
| PA-16 | PA-SP-R-13 | Removal | Yes | Removed from RNHS - Area developed | 598607 | 4809112 | 161.30 | 0.02 | Planning Applications | Halton Region |
| PA-17 | PA-SP-R-14 | Removal | Yes | Removed from RNHS - Area developed | 598658 | 4809119 | 40.22 | 0.00 | Planning Applications | Halton Region |
| PA-18 | PA-SP-R-15 | Removal | Yes | Removed from RNHS - Area developed | 598976 | 4809095 | 13302.07 | 1.33 | Planning Applications | Halton Region |
| PA-19 | PA-SP-R-16 | No Change | No | RNHS Unchanged - NS check required | 609718 | 4813449 | 1.10 | 0.00 | Planning Applications | Halton Region |
| PA-20 | PA-SP-R-17 | No Change | No | RNHS Unchanged - NS check required | 609670 | 4813468 | 0.08 | 0.00 | Planning Applications | Halton Region |

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| PA-21 | PA-SP-R-18 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 609635 | 4813506 | 5.79 | 0.00 | Planning Applications | Halton Region |
| PA-22 | PA-SP-R-19 | Removal | Yes | Removed from RNHS - Area developed | 601792 | 4813765 | 264.78 | 0.03 | Planning Applications | Halton Region |
| PA-23 | PA-SP-R-20 | Removal | Yes | Removed from RNHS - Area developed | 602043 | 4813979 | 730.24 | 0.07 | Planning Applications | Halton Region |
| PA-24 | PA-SP-R-21 | Removal | Yes | Removed from RNHS - Area developed - NS check - Slivers | 602985 | 4814728 | 2146.03 | 0.21 | Planning Applications | Halton Region |
| PA-25 | PA-SP-R-22 | Removal | Yes | Removed from RNHS - Area developed | 602550 | 4815008 | 2764.89 | 0.28 | Planning Applications | Halton Region |
| PA-26 | PA-SP-R-23 | Removal | Yes | Removed from RNHS - Area developed | 590433 | 4815497 | 180.07 | 0.02 | Planning Applications | Halton Region |
| PA-27 | PA-SP-R-24 | Removal | Yes | Removed from RNHS - Area developed - NS check - More deletion to RNHS area may be required | 592568 | 4815769 | 3997.12 | 0.40 | Planning Applications | Halton Region |
| PA-28 | PA-SP-R-25 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 603501 | 4815872 | 336.52 | 0.03 | Planning Applications | Halton Region |
| PA-29 | PA-SP-R-26 | Removal | Yes | Removed from RNHS - Area developed | 589550 | 4816142 | 3180.54 | 0.32 | Planning Applications | Halton Region |
| PA-30 | PA-SP-R-27 | Removal | Yes | Removed from RNHS - Area Developed | 591852 | 4816359 | 8334.41 | 0.83 | Planning Applications | Halton Region |
| PA-31 | PA-SP-R-28 | No Change | No | RNHS Unchanged - NS check required | 589295 | 4816765 | 98.12 | 0.01 | Planning Applications | Halton Region |
| PA-32 | PA-SP-R-29 | No Change | No | RNHS Unchanged - NS check required | 589343 | 4816791 | 1.69 | 0.00 | Planning Applications | Halton Region |
| PA-33 | PA-SP-R-30 | Removal | Yes | Removed from RNHS - Area developed - NS check - Linkage re-alignment | 592405 | 4816674 | 12339.76 | 1.23 | Planning Applications | Halton Region |
| PA-34 | PA-SP-R-31 | No Change | No | RNHS Unchanged - NS check required | 589425 | 4816857 | 415.01 | 0.04 | Planning Applications | Halton Region |
| PA-35 | PA-SP-R-32 | No Change | No | RNHS Unchanged - NS check required | 589301 | 4817108 | 2889.43 | 0.29 | Planning Applications | Halton Region |
| PA-36 | PA-SP-R-33 | Removal | Yes | Removed from RNHS - Area developed | 589759 | 4817615 | 1.94 | 0.00 | Planning Applications | Halton Region |
| PA-37 | PA-SP-R-34 | Removal | Yes | Removed from RNHS - Area developed | 589832 | 4817636 | 3783.14 | 0.38 | Planning Applications | Halton Region |
| PA-38 | PA-SP-R-35 | Removal | Yes | Removed from RNHS - Area developed | 593764 | 4819701 | 1796.06 | 0.18 | Planning Applications | Halton Region |
| PA-39 | PA-SP-R-36 | Removal | Yes | Removed from RNHS - Area developed | 593054 | 4819831 | 310.23 | 0.03 | Planning Applications | Halton Region |
| PA-40 | PA-SP-R-37 | No Change | No | RNHS Unchanged - NS check required | 588354 | 4820359 | 15061.46 | 1.51 | Planning Applications | Halton Region |
| PA-41 | PA-SP-R-38 | Removal | Yes | Removed from RNHS - Area developed | 587347 | 4820480 | 3899.11 | 0.39 | Planning Applications | Halton Region |
| PA-42 | PA-SP-R-39 | Removal | Yes | Removed from RNHS - Area developed | 587174 | 4820547 | 345.14 | 0.03 | Planning Applications | Halton Region |

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| PA-43 | PA-SP-R-40 | Removal | Yes | Removed from RNHS - Area Developed | 586818 | 4820574 | 3175.33 | 0.32 | Planning Applications | Halton Region |
| PA-44 | PA-SP-R-41 | Removal | Yes | Removed from RNHS - Area developed | 587051 | 4820599 | 1870.48 | 0.19 | Planning Applications | Halton Region |
| PA-45 | PA-SP-R-42 | Removal | Yes | Removed from RNHS - Area developed | 587175 | 4820622 | 3595.11 | 0.36 | Planning Applications | Halton Region |
| PA-46 | PA-SP-R-43 | No Change | No | RNHS Unchanged - NS check required | 586936 | 4820706 | 29.69 | 0.00 | Planning Applications | Halton Region |
| PA-47 | PA-SP-R-44 | No Change | No | RNHS Unchanged - NS check required | 586894 | 4820737 | 58.54 | 0.01 | Planning Applications | Halton Region |
| PA-48 | PA-SP-R-45 | Removal | Yes | Removed from RNHS - Area developed | 586800 | 4820818 | 108.45 | 0.01 | Planning Applications | Halton Region |
| PA-49 | PA-SP-R-46 | Removal | Yes | Removed from RNHS - Area developed | 592414 | 4821068 | 1862.10 | 0.19 | Planning Applications | Halton Region |
| PA-50 | PA-SP-R-47 | Removal | Yes | Removed from RNHS - Area developed - NS check required - Sliver and island RNHS | 587042 | 4821038 | 52927.52 | 5.29 | Planning Applications | Halton Region |
| PA-51 | PA-SP-R-48 | Removal | Yes | Removed from RNHS - Area developed | 592444 | 4822843 | 40.02 | 0.00 | Planning Applications | Halton Region |
| PA-52 | PA-SP-R-49 | Removal | Yes | Removed from RNHS - Area developed | 590150 | 4833725 | 17.23 | 0.00 | Planning Applications | Halton Region |
| PA-53 | PA-SP-R-50 | Removal | Yes | Removed from RNHS - Area developed | 594140 | 4798613 | 13986.56 | 1.40 | Planning Applications | Site Plan Application |
| PA-54 | PA-SP-R-51 | Removal | Yes | Removed from RNHS - Area developed | 605158 | 4812086 | 4195.09 | 0.42 | Planning Applications | Site Plan Application |
| PA-55 | PA-SP-R-52 | Removal | Yes | Removed from RNHS - Area developed | 589603 | 4819690 | 487.30 | 0.05 | Planning Applications | Site Plan Application |
| PA-56 | PA-SP-R-53 | Removal | Yes | Removed from RNHS - Area developed | 589472 | 4820430 | 2374.57 | 0.24 | Planning Applications | Site Plan Application |
| PA-57 | PA-SP-R-54 | Removal | Yes | Removed from RNHS - Partial Area Developed - NS check required | 603566 | 4815633 | 3068.56 | 0.31 | Planning Applications | Site Plan Application |
| PA-58 | PA-SP-R-55 | Removal | Yes | Removed from RNHS - Partial Area Developed - Linkage, Island NHS - NS check required | 587729 | 4820472 | 28260.31 | 2.83 | Planning Applications | OPA 31 |
| PA-59 | PA-S-A-1 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 588478 | 4809011 | 80193.03 | 8.02 | Planning Applications | Planing Application |
| PA-60 | PA-S-A-2 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 588563 | 4808645 | 18971.19 | 1.90 | Planning Applications | Planing Application |
| PA-61 | PA-S-A-3 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 588805 | 4808859 | 57846.24 | 5.78 | Planning Applications | Planing Application |
| PA-62 | PA-S-A-4 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 596135 | 4807593 | 25782.88 | 2.58 | Planning Applications | Planing Application |
| PA-63 | PA-S-A-5 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 600329 | 4814433 | 13153.52 | 1.32 | Planning Applications | Planing Application |
| PA-64 | PA-S-A-6 | Addition | Yes | Added to RNHS - Creek re-alignment | 601943 | 4814045 | 11477.58 | 1.15 | Planning Applications | Planing Application |
| PA-65 | PA-S-A-7 | Addition | Yes | Added to RNHS - Creek re-alignment | 601768 | 4814370 | 17525.02 | 1.75 | Planning Applications | Planing Application |
| PA-66 | PA-S-A-8 | Addition | Yes | Added to RNHS - Creek re-alignment | 593130 | 4815507 | 5894.20 | 0.59 | Planning Applications | Planing Application |
| PA-67 | PA-S-A-9 | Addition | Yes | Added to RNHS - Creek re-alignment | 593132 | 4815535 | 18117.73 | 1.81 | Planning Applications | Planing Application |
| PA-68 | PA-S-A-10 | Addition | Yes | Added to RNHS - Creek re-alignment | 593108 | 4815583 | 4568.40 | 0.46 | Planning Applications | Planing Application |
| PA-69 | PA-S-A-11 | Addition | Yes | Added to RNHS - Creek re-alignment | 592721 | 4815663 | 4843.88 | 0.48 | Planning Applications | Planing Application |

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| PA-70 | PA-S-A-12 | Addition | Yes | Added to RNHS - Creek re-alignment | 592732 | 4815677 | 12114.04 | 1.21 | Planning Applications | Planing Application |
| PA-71 | PA-S-A-13 | Addition | Yes | Added to RNHS - Creek re-alignment | 592743 | 4815691 | 4845.98 | 0.48 | Planning Applications | Planing Application |
| PA-72 | PA-S-A-14 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 592930 | 4820527 | 18093.88 | 1.81 | Planning Applications | Planing Application |
| PA-73 | PA-S-A-15 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 586601 | 4820536 | 1673.45 | 0.17 | Planning Applications | Planing Application |
| PA-74 | PA-S-A-16 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 586812 | 4820587 | 1331.46 | 0.13 | Planning Applications | Planing Application |
| PA-75 | PA-S-A-17 | No Change | No | Already in RNHS - No changes required | 586786 | 4820622 | 11795.53 | 1.18 | Planning Applications | Planing Application |
| PA-76 | PA-S-A-18 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 586604 | 4820573 | 11866.96 | 1.19 | Planning Applications | Planing Application |
| PA-77 | PA-S-A-19 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 586609 | 4820615 | 919.29 | 0.09 | Planning Applications | Planing Application |
| PA-78 | PA-S-A-20 | No Change | No | Already in RNHS - No changes required | 586754 | 4820659 | 976.33 | 0.10 | Planning Applications | Planing Application |
| PA-79 | PA-S-A-21 | Addition | Yes | Adeded to RNHS - Expands RNHS area already there | 598796 | 4809183 | 4975.28 | 0.50 | Planning Applications | Planing Application |
| PA-80 | PA-S-A-22 | Addition | Yes | Added to RNHS - Stand alone area - NS check required | 592595 | 4816394 | 1477.62 | 0.15 | Planning Applications | Planing Application |
| PA-81 | PA-S-A-23 | Addition | Yes | Added to RNHS - Creek re-alignment | 592713 | 4816295 | 11236.81 | 1.12 | Planning Applications | Planing Application |
| PA-82 | PA-S-A-24 | Addition | Yes | Added to RNHS - Stand alone area - NS check required | 592611 | 4816416 | 224.90 | 0.02 | Planning Applications | Planing Application |
| PA-83 | PA-S-A-25 | Addition | Yes | Added to RNHS - Creek re-alignemnt | 592729 | 4816317 | 1783.86 | 0.18 | Planning Applications | Planing Application |
| PA-84 | PA-S-A-26 | Addition | Yes | Added to RNHS - Stand alone area - NS check required | 592578 | 4816372 | 242.54 | 0.02 | Planning Applications | Planing Application |
| PA-85 | PA-S-A-27 | Addition | Yes | Added to RNHS - Creek re-alignment | 592696 | 4816273 | 1763.78 | 0.18 | Planning Applications | Planing Application |
| PA-86 | PA-S-A-28 | No Change | No | Already in RNHS - No changes required | 589387 | 4816736 | 58.46 | 0.01 | Planning Applications | Planing Application |
| PA-87 | PA-S-A-29 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 589566 | 4816857 | 10314.02 | 1.03 | Planning Applications | Planing Application |
| PA-88 | PA-S-A-30 | No Change | No | Already in RNHS - No changes required | 589398 | 4816792 | 5985.19 | 0.60 | Planning Applications | Planing Application |
| PA-89 | PA-S-A-31 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 592104 | 4816627 | 5464.19 | 0.55 | Planning Applications | Planing Application |
| PA-90 | PA-S-A-32 | No Change | No | Already in RNHS - No changes required | 591817 | 4816362 | 14321.41 | 1.43 | Planning Applications | Planing Application |
| PA-91 | PA-S-A-33 | Addition | Yes | Added to RNHS - Expands RNHS area already there - NS check required | 589377 | 4816301 | 887.54 | 0.09 | Planning Applications | Planing Application |
| PA-92 | PA-S-A-34 | Addition | Yes | Added to RNHS - Expands RNHS area already there - NS check required | 589380 | 4816326 | 1761.16 | 0.18 | Planning Applications | Planing Application |
| PA-93 | PA-S-A-35 | Addition | Yes | Added to RNHS - Creek re-alignment | 590183 | 4815698 | 3162.50 | 0.32 | Planning Applications | Planing Application |
| PA-94 | PA-S-A-36 | Addition | Yes | Added to RNHS - Creek re-alignment | 590184 | 4815685 | 6817.34 | 0.68 | Planning Applications | Planing Application |
| PA-95 | PA-S-A-37 | Addition | Yes | Added to RNHS - Creek re-alignment | 590185 | 4815673 | 2852.73 | 0.29 | Planning Applications | Planing Application |
| PA-96 | PA-S-A-38 | Addition | Yes | Added to RNHS - Expands RNHS area already there - Sliver present - NS check required | 590155 | 4816198 | 12046.84 | 1.20 | Planning Applications | Planing Application |
| PA-97 | PA-S-A-39 | Addition | Yes | Added to RNHS - Expands RNHS area already there - NS check required | 593152 | 4815605 | 1040.25 | 0.10 | Planning Applications | Planing Application |
| PA-98 | PA-S-A-40 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 590467 | 4815742 | 291.47 | 0.03 | Planning Applications | Planing Application |
| PA-99 | PA-S-A-41 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 607595 | 4812923 | 469.52 | 0.05 | Planning Applications | Planing Application |
| PA-100 | PA-S-A-42 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 607546 | 4812902 | 391.99 | 0.04 | Planning Applications | Planing Application |
| PA-101 | PA-S-A-43 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 607577 | 4812902 | 1262.50 | 0.13 | Planning Applications | Planing Application |
| PA-102 | PA-S-A-44 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 606810 | 4816524 | 1962.57 | 0.20 | Planning Applications | Planing Application |
| PA-103 | PA-S-A-45 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 606792 | 4816561 | 8715.83 | 0.87 | Planning Applications | Planing Application |
| PA-104 | PA-S-A-46 | Addition | Yes | Added to RNHS - Creek re-alignment | 593998 | 4815526 | 3385.33 | 0.34 | Planning Applications | Planing Application |
| PA-105 | PA-S-A-47 | Addition | Yes | Added to RNHS - Creek re-alignment | 593786 | 4815759 | 9230.07 | 0.92 | Planning Applications | Planing Application |

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| PA-106 | PA-S-A-48 | Addition | Yes | Added to RNHS - Creek re-alignment | 593769 | 4815744 | 2487.84 | 0.25 | Planning Applications | Planing Application |
| PA-107 | PA-S-A-49 | Addition | Yes | Added to RNHS - Creek re-alignment | 593804 | 4815773 | 2674.90 | 0.27 | Planning Applications | Planing Application |
| PA-108 | PA-S-A-50 | Addition | Yes | Added to RNHS - Creek re-alignment | 594017 | 4815541 | 11866.24 | 1.19 | Planning Applications | Planing Application |
| PA-109 | PA-S-A-51 | Addition | Yes | Added to RNHS - Creek re-alignment | 594036 | 4815557 | 3242.54 | 0.32 | Planning Applications | Planing Application |
| PA-110 | PA-S-A-52 | Addition | Yes | Added to RNHS - Stand alone area - Linkages required - NS check required | 587052 | 4835916 | 31195.98 | 3.12 | Planning Applications | Planing Application |
| PA-111 | PA-S-A-53 | Addition | Yes | Added to RNHS - Stand alone area - Linkages required - NS check required | 587150 | 4835902 | 13024.62 | 1.30 | Planning Applications | Planing Application |
| PA-112 | PA-S-A-54 | Addition | Yes | Added to RNHS - Expands RNHS area already there - Sliver present - NS check required | 587205 | 4835584 | 99661.38 | 9.97 | Planning Applications | Planing Application |
| PA-113 | PA-S-A-55 | Addition | Yes | Added to RNHS - Linkage - NS check required | 594091 | 4822139 | 14885.41 | 1.49 | Planning Applications | Planing Application |
| PA-114 | PA-S-A-56 | Addition | Yes | Added to RNHS - Linkage - NS check required | 594140 | 4822182 | 37308.64 | 3.73 | Planning Applications | Planing Application |
| PA-115 | PA-S-A-57 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 603200 | 4816934 | 100622.52 | 10.06 | Planning Applications | Planing Application |
| PA-116 | PA-S-A-58 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 603109 | 4816627 | 79412.46 | 7.94 | Planning Applications | Planing Application |
| PA-117 | PA-S-A-59 | Addition | Yes | Added to RNHS - Expands RNHS area already there - Slivers - NS check required | 591762 | 4818150 | 6591.87 | 0.66 | Planning Applications | Planing Application |
| PA-118 | PA-S-A-60 | Addition | Yes | Added to RNHS - Creek re-alignment | 602955 | 4814814 | 1867.89 | 0.19 | Planning Applications | Planing Application |
| PA-119 | PA-S-A-61 | Addition | Yes | Added to RNHS - Creek re-alignment | 602942 | 4814791 | 10552.34 | 1.06 | Planning Applications | Planing Application |
| PA-120 | PA-S-A-62 | Addition | Yes | Added to RNHS - Creek re-alignment | 602946 | 4814759 | 1419.05 | 0.14 | Planning Applications | Planing Application |
| PA-121 | PA-S-A-63 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601393 | 4814943 | 10129.18 | 1.01 | Planning Applications | Planing Application |
| PA-122 | PA-S-A-64 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601094 | 4814577 | 45751.84 | 4.58 | Planning Applications | Planing Application |
| PA-123 | PA-S-A-65 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601612 | 4814964 | 16213.17 | 1.62 | Planning Applications | Planing Application |
| PA-124 | PA-S-A-66 | Addition | Yes | Added to RNHS - Creek re-alignment | 593661 | 4815109 | 9473.06 | 0.95 | Planning Applications | Planing Application |
| PA-125 | PA-S-A-67 | Addition | Yes | Added to RNHS - Creek re-alignment | 593439 | 4815318 | 7091.19 | 0.71 | Planning Applications | Planing Application |
| PA-126 | PA-S-A-68 | Addition | Yes | Added to RNHS - Creek re-alignment | 593427 | 4815302 | 2435.11 | 0.24 | Planning Applications | Planing Application |
| PA-127 | PA-S-A-69 | Addition | Yes | Added to RNHS - Creek re-alignment | 593650 | 4815092 | 3192.98 | 0.32 | Planning Applications | Planing Application |
| PA-128 | PA-S-A-70 | Addition | Yes | Added to RNHS - Creek re-alignment | 602660 | 4815036 | 29306.96 | 2.93 | Planning Applications | Planing Application |
| PA-129 | PA-S-A-71 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 602851 | 4815867 | 51670.45 | 5.17 | Planning Applications | Planing Application |
| PA-130 | PA-S-A-72 | No Change | No | Already in RNHS - No changes required | 603274 | 4815744 | 4310.89 | 0.43 | Planning Applications | Planing Application |
| PA-131 | PA-S-A-73 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 603256 | 4815798 | 34609.77 | 3.46 | Planning Applications | Planing Application |
| PA-132 | PA-S-A-74 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601910 | 4815171 | 61831.70 | 6.18 | Planning Applications | Planing Application |
| PA-133 | PA-S-A-75 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601728 | 4815074 | 7144.96 | 0.71 | Planning Applications | Planing Application |
| PA-134 | PA-S-A-76 | No Change | No | Already in RNHS - No changes required | 591486 | 4815946 | 2271.78 | 0.23 | Planning Applications | Planing Application |
| PA-135 | PA-S-A-77 | No Change | No | Already in RNHS - No changes required | 591582 | 4816069 | 2723.42 | 0.27 | Planning Applications | Planing Application |
| PA-136 | PA-S-A-78 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 594109 | 4819618 | 23574.85 | 2.36 | Planning Applications | Planing Application |
| PA-137 | PA-S-A-79 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 588297 | 4831876 | 9636.11 | 0.96 | Planning Applications | Planing Application |
| PA-138 | PA-S-A-80 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601606 | 4813784 | 4049.09 | 0.40 | Planning Applications | Planing Application |
| PA-139 | PA-S-A-81 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 601505 | 4813808 | 2501.25 | 0.25 | Planning Applications | Planing Application |
| PA-140 | PA-S-A-82 | Addition | Yes | Added to RNHS - Creek re-alignment | 601277 | 4813904 | 18785.98 | 1.88 | Planning Applications | Planing Application |
| PA-141 | PA-S-A-83 | Addition | Yes | Added to RNHS - Creek re-alignment | 601070 | 4814065 | 3011.79 | 0.30 | Planning Applications | Planing Application |

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|---|---|---|---|---|---|---|---|---|---|---|
| PA-142 | PA-S-A-84 | Addition | Yes | Added to RNHS - Creek re-alignment | 595119 | 4806189 | 9875.89 | 0.99 | Planning Applications | Planing Application |
| PA-143 | PA-S-A-85 | No Change | No | Already in RNHS - No changes required | 594844 | 4806282 | 5449.74 | 0.54 | Planning Applications | Planing Application |
| PA-144 | PA-S-A-86 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 594933 | 4804866 | 5480.98 | 0.55 | Planning Applications | Planing Application |
| PA-145 | PA-S-A-87 | Addition | Yes | Added to RNHS - Creek re-alignment | 589322 | 4817116 | 1593.74 | 0.16 | Planning Applications | Planing Application |
| PA-146 | PA-S-A-88 | No Change | No | Already in RNHS - No changes required | 589309 | 4817156 | 400.39 | 0.04 | Planning Applications | Planing Application |
| PA-147 | PA-S-A-89 | No Change | No | Already in RNHS - No changes required | 589291 | 4817134 | 1870.49 | 0.19 | Planning Applications | Planing Application |
| PA-148 | PA-S-A-90 | No Change | No | Already in RNHS - No changes required | 606869 | 4816556 | 1924.46 | 0.19 | Planning Applications | Planing Application |
| PA-149 | PA-S-A-91 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 599413 | 4810226 | 14475.73 | 1.45 | Planning Applications | Planing Application |
| PA-150 | PA-S-A-92 | No Change | No | Already in RNHS - No changes required | 584723 | 4831651 | 81350.75 | 8.14 | Planning Applications | Planing Application |
| PA-151 | PA-S-A-93 | No Change | No | Already in RNHS - No changes required | 584891 | 4831600 | 30768.17 | 3.08 | Planning Applications | Planing Application |
| PA-152 | PA-S-A-94 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 586923 | 4820622 | 1052.08 | 0.11 | Planning Applications | OPA 31 NHS |
| PA-153 | PA-S-A-95 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 586768 | 4820750 | 2758.11 | 0.28 | Planning Applications | OPA 31 NHS |
| PA-154 | PA-S-A-96 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 587722 | 4820348 | 14370.90 | 1.44 | Planning Applications | OPA 31 NHS |
| PA-155 | PA-S-A-97 | Addition | Yes | Added to RNHS - Creek re-alignment | 593037 | 4815995 | 29679.37 | 2.97 | Planning Applications | Planning Application |
| PA-156 | PA-S-A-98 | Addition | Yes | Added to RNHS - Expands RNHS area already there | 592904 | 4816790 | 529.77 | 0.05 | Planning Applications | |
| PA-157 | PA-S-R-1 | Removal | Yes | Removed from RNHS - Area developed | 595028 | 4804880 | 26393.88 | 2.64 | Planning Applications | |
| PA-158 | PA-S-R-2 | Removal | Yes | Removed from RNHS - NS check required | 594656 | 4805040 | 0.08 | 0.00 | Planning Applications | |
| PA-159 | PA-S-R-3 | Removal | Yes | Removed from RNHS - NS check required | 594651 | 4805046 | 30.01 | 0.00 | Planning Applications | |
| PA-160 | PA-S-R-4 | Removal | Yes | Removed from RNHS - NS check required | 594564 | 4805152 | 3530.60 | 0.35 | Planning Applications | |
| PA-161 | PA-S-R-5 | Removal | Yes | Removed from RNHS - NS check required | 594585 | 4805621 | 1917.04 | 0.19 | Planning Applications | |
| PA-162 | PA-S-R-6 | Removal | Yes | Removed from RNHS - Area developed | 595552 | 4806074 | 8964.91 | 0.90 | Planning Applications | |
| PA-163 | PA-S-R-7 | Removal | Yes | Removed from RNHS - Area developed | 595080 | 4806189 | 431.67 | 0.04 | Planning Applications | |
| PA-164 | PA-S-R-8 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 595044 | 4806243 | 33748.04 | 3.37 | Planning Applications | |
| PA-165 | PA-S-R-9 | Removal | Yes | Removed from RNHS - Area developed | 596096 | 4807521 | 15740.49 | 1.57 | Planning Applications | |
| PA-166 | PA-S-R-10 | Removal | Yes | Removed from RNHS - Area developed | 600178 | 4808281 | 2052.70 | 0.21 | Planning Applications | |
| PA-167 | PA-S-R-11 | Removal | Yes | Removed from RNHS - NS check required | 588712 | 4808568 | 723.24 | 0.07 | Planning Applications | |
| PA-168 | PA-S-R-12 | Removal | Yes | Removed from RNHS - NS check required | 588522 | 4808676 | 102.14 | 0.01 | Planning Applications | |
| PA-169 | PA-S-R-13 | Removal | Yes | Removed from RNHS - NS check required | 588593 | 4808685 | 0.04 | 0.00 | Planning Applications | |
| PA-170 | PA-S-R-14 | Removal | Yes | Removed from RNHS - Road | 588666 | 4808691 | 1526.87 | 0.15 | Planning Applications | |
| PA-171 | PA-S-R-15 | Removal | Yes | Removed from RNHS - Area developed - Woodland Buffer - NS check required | 588385 | 4808779 | 460.39 | 0.05 | Planning Applications | |
| PA-172 | PA-S-R-16 | Removal | Yes | Removed from RNHS - NS check required | 588661 | 4808826 | 267.30 | 0.03 | Planning Applications | |
| PA-173 | PA-S-R-17 | Removal | Yes | Removed from RNHS - Area developed | 598818 | 4808597 | 98108.69 | 9.81 | Planning Applications | |
| PA-174 | PA-S-R-18 | Removal | Yes | Removed from RNHS - NS check required | 588504 | 4808947 | 26.92 | 0.00 | Planning Applications | |
| PA-175 | PA-S-R-19 | Removal | Yes | Removed from RNHS - NS check required | 588763 | 4808954 | 752.01 | 0.08 | Planning Applications | |
| PA-176 | PA-S-R-20 | Removal | Yes | Removed from RNHS - Area developed | 598757 | 4809082 | 41.59 | 0.00 | Planning Applications | |
| PA-177 | PA-S-R-21 | Removal | Yes | Removed from RNHS - Area developed | 598606 | 4809112 | 168.32 | 0.02 | Planning Applications | |
| PA-178 | PA-S-R-22 | Removal | Yes | Removed from RNHS - Area developed | 598658 | 4809119 | 40.22 | 0.00 | Planning Applications | |

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| PA-179 | PA-S-R-23 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 598976 | 4809095 | 14240.16 | 1.42 | Planning Applications | |
| PA-180 | PA-S-R-24 | No Change | No | RNHS Unchanged - NS check required | 588306 | 4808915 | 362.09 | 0.04 | Planning Applications | |
| PA-181 | PA-S-R-25 | Removal | Yes | Removed from RNHS - Area developed | 598737 | 4809296 | 2861.82 | 0.29 | Planning Applications | |
| PA-182 | PA-S-R-26 | Removal | Yes | Removed from RNHS - Area Developed - Sliver - NS check required | 599788 | 4809941 | 3.26 | 0.00 | Planning Applications | |
| PA-183 | PA-S-R-27 | Removal | Yes | Removed from RNHS - Area Developed - Sliver - NS check required | 599422 | 4810151 | 10535.89 | 1.05 | Planning Applications | |
| PA-184 | PA-S-R-28 | Removal | Yes | Removed from RNHS - Area Developed - Sliver - NS check required | 599460 | 4810243 | 2474.37 | 0.25 | Planning Applications | |
| PA-185 | PA-S-R-29 | No Change | No | RNHS Unchanged - NS check required | 607628 | 4812945 | 29.47 | 0.00 | Planning Applications | |
| PA-186 | PA-S-R-30 | Removal | Yes | Removed from RNHS - Area developed | 601792 | 4813765 | 264.78 | 0.03 | Planning Applications | |
| PA-187 | PA-S-R-31 | Removal | Yes | Removed from RNHS - Area developed | 601480 | 4813786 | 48.26 | 0.00 | Planning Applications | |
| PA-188 | PA-S-R-32 | Removal | Yes | Removed from RNHS - Area developed | 601510 | 4813821 | 2350.04 | 0.24 | Planning Applications | |
| PA-189 | PA-S-R-33 | Removal | Yes | Removed from RNHS - Area developed | 601246 | 4813904 | 593.76 | 0.06 | Planning Applications | |
| PA-190 | PA-S-R-34 | Removal | Yes | Removed from RNHS - Area developed | 601162 | 4813939 | 49.19 | 0.00 | Planning Applications | |
| PA-191 | PA-S-R-35 | Removal | Yes | Removed from RNHS - Area developed | 601157 | 4813987 | 447.02 | 0.04 | Planning Applications | |
| PA-192 | PA-S-R-36 | Removal | Yes | Removed from RNHS - Area developed | 601070 | 4814024 | 1672.37 | 0.17 | Planning Applications | |
| PA-193 | PA-S-R-37 | Removal | Yes | Removed from RNHS - Area developed | 601079 | 4814099 | 54.11 | 0.01 | Planning Applications | |
| PA-194 | PA-S-R-38 | Removal | Yes | Removed from RNHS - Area developed | 600996 | 4814124 | 586.58 | 0.06 | Planning Applications | |
| PA-195 | PA-S-R-39 | Removal | Yes | Removed from RNHS - Area Developed - Sliver - NS check required | 601100 | 4814171 | 116.39 | 0.01 | Planning Applications | |
| PA-196 | PA-S-R-40 | Removal | Yes | Removed from RNHS - Creek re-alignment | 601901 | 4814037 | 15221.63 | 1.52 | Planning Applications | |
| PA-197 | PA-S-R-41 | Removal | Yes | Removed from RNHS - Area developed | 600265 | 4814472 | 818.65 | 0.08 | Planning Applications | |
| PA-198 | PA-S-R-42 | Removal | Yes | Removed from RNHS - Creek re-alignment | 601659 | 4814353 | 18041.39 | 1.80 | Planning Applications | |
| PA-199 | PA-S-R-43 | Removal | Yes | Removed from RNHS - Road | 603066 | 4814756 | 942.86 | 0.09 | Planning Applications | |
| PA-200 | PA-S-R-44 | Removal | Yes | Removed from RNHS - Area developed | 603000 | 4814720 | 3322.47 | 0.33 | Planning Applications | |
| PA-201 | PA-S-R-45 | Removal | Yes | Removed from RNHS - Area developed | 601322 | 4814833 | 1029.89 | 0.10 | Planning Applications | |
| PA-202 | PA-S-R-46 | No Change | No | RNHS Unchanged - NS check required | 602836 | 4814858 | 127.08 | 0.01 | Planning Applications | |
| PA-203 | PA-S-R-47 | Removal | Yes | Removed from RNHS - Area developed | 593115 | 4814880 | 3469.75 | 0.35 | Planning Applications | |
| PA-204 | PA-S-R-48 | Removal | Yes | Removed from RNHS - Area developed | 601394 | 4814901 | 261.12 | 0.03 | Planning Applications | |
| PA-205 | PA-S-R-49 | Removal | Yes | Removed from RNHS - Area developed | 601951 | 4815039 | 419.32 | 0.04 | Planning Applications | |
| PA-206 | PA-S-R-50 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 602780 | 4815007 | 8772.34 | 0.88 | Planning Applications | |
| PA-207 | PA-S-R-51 | Removal | Yes | Removed from RNHS - Area developed | 602508 | 4815055 | 657.73 | 0.07 | Planning Applications | |
| PA-208 | PA-S-R-52 | Removal | Yes | Removed from RNHS - Area developed | 593487 | 4815291 | 0.17 | 0.00 | Planning Applications | |
| PA-209 | PA-S-R-53 | Removal | Yes | Removed from RNHS - Creek re-alignment | 593573 | 4815096 | 35224.57 | 3.52 | Planning Applications | |
| PA-210 | PA-S-R-54 | No Change | No | RNHS Unchanged - NS check required | 601766 | 4815102 | 4824.54 | 0.48 | Planning Applications | |
| PA-211 | PA-S-R-55 | Removal | Yes | Removed from RNHS - Area developed | 590433 | 4815497 | 180.07 | 0.02 | Planning Applications | |
| PA-212 | PA-S-R-56 | Removal | Yes | Removed from RNHS - Area developed | 593423 | 4815419 | 11330.51 | 1.13 | Planning Applications | |

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| PA-213 | PA-S-R-57 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593211 | 4815560 | 22.88 | 0.00 | Planning Applications | |
| PA-214 | PA-S-R-58 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593202 | 4815566 | 0.42 | 0.00 | Planning Applications | |
| PA-215 | PA-S-R-59 | Removal | Yes | Removed from RNHS - Creek re-alignment - NS check required | 602491 | 4815294 | 54706.75 | 5.47 | Planning Applications | |
| PA-216 | PA-S-R-60 | Removal | Yes | Removed from RNHS - Area developed | 593111 | 4815555 | 2521.96 | 0.25 | Planning Applications | |
| PA-217 | PA-S-R-61 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593158 | 4815608 | 360.52 | 0.04 | Planning Applications | |
| PA-218 | PA-S-R-62 | Removal | Yes | Removed from RNHS - Area developed | 590108 | 4815716 | 76.83 | 0.01 | Planning Applications | |
| PA-219 | PA-S-R-63 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593945 | 4815537 | 23430.75 | 2.34 | Planning Applications | |
| PA-220 | PA-S-R-64 | Removal | Yes | Removed from RNHS - Area developed | 590030 | 4815680 | 1909.59 | 0.19 | Planning Applications | |
| PA-221 | PA-S-R-65 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 603261 | 4815730 | 4528.12 | 0.45 | Planning Applications | |
| PA-222 | PA-S-R-66 | Removal | Yes | Removed from RNHS - Area developed | 590221 | 4815710 | 5147.39 | 0.51 | Planning Applications | |
| PA-223 | PA-S-R-67 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 592875 | 4815680 | 24480.43 | 2.45 | Planning Applications | |
| PA-224 | PA-S-R-68 | Removal | Yes | Removed from RNHS - Area developed | 602993 | 4815780 | 430.91 | 0.04 | Planning Applications | |
| PA-225 | PA-S-R-69 | Removal | Yes | Removed from RNHS - Area developed | 592568 | 4815769 | 3966.56 | 0.40 | Planning Applications | |
| PA-226 | PA-S-R-70 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 603487 | 4815884 | 287.34 | 0.03 | Planning Applications | |
| PA-227 | PA-S-R-71 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593774 | 4815896 | 4853.33 | 0.49 | Planning Applications | |
| PA-228 | PA-S-R-72 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 602666 | 4815866 | 11768.39 | 1.18 | Planning Applications | |
| PA-229 | PA-S-R-73 | No Change | No | RNHS Unchanged - NS check required | 590416 | 4815898 | 1685.21 | 0.17 | Planning Applications | |
| PA-230 | PA-S-R-74 | Removal | Yes | Removed from RNHS - Area developed | 589914 | 4816099 | 87.77 | 0.01 | Planning Applications | |
| PA-231 | PA-S-R-75 | Removal | Yes | Removed from RNHS - Area developed | 591461 | 4816009 | 1805.39 | 0.18 | Planning Applications | |
| PA-232 | PA-S-R-76 | Removal | Yes | Removed from RNHS - Area developed | 589732 | 4816110 | 630.01 | 0.06 | Planning Applications | |
| PA-233 | PA-S-R-77 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 591556 | 4815999 | 8827.61 | 0.88 | Planning Applications | |
| PA-234 | PA-S-R-78 | Removal | Yes | Removed from RNHS - Area developed | 589550 | 4816142 | 3180.54 | 0.32 | Planning Applications | |
| PA-235 | PA-S-R-79 | Removal | Yes | Removed from RNHS - Area developed | 590158 | 4816152 | 6627.80 | 0.66 | Planning Applications | |
| PA-236 | PA-S-R-80 | Removal | Yes | Removed from RNHS - Area developed | 593151 | 4816069 | 45097.26 | 4.51 | Planning Applications | |
| PA-237 | PA-S-R-81 | Removal | Yes | Removed from RNHS - Road | 592814 | 4816219 | 775.59 | 0.08 | Planning Applications | |
| PA-238 | PA-S-R-82 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 592797 | 4816273 | 547.08 | 0.05 | Planning Applications | |
| PA-239 | PA-S-R-83 | Removal | Yes | Removed from RNHS - Area developed | 589562 | 4816322 | 364.62 | 0.04 | Planning Applications | |
| PA-240 | PA-S-R-84 | Removal | Yes | Removed from RNHS - Area developed | 589374 | 4816334 | 120.68 | 0.01 | Planning Applications | |
| PA-241 | PA-S-R-85 | Removal | Yes | Removed from RNHS - Area developed | 589457 | 4816375 | 3622.47 | 0.36 | Planning Applications | |
| PA-242 | PA-S-R-86 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 592512 | 4816339 | 20396.15 | 2.04 | Planning Applications | |

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| PA-243 | PA-S-R-87 | Removal | Yes | Removed from RNHS - Area developed | 591830 | 4816330 | 10045.46 | 1.00 | Planning Applications | |
| PA-244 | PA-S-R-88 | No Change | No | RNHS Unchanged - NS check required | 606856 | 4816512 | 7.90 | 0.00 | Planning Applications | |
| PA-245 | PA-S-R-89 | No Change | No | RNHS Unchanged - NS check required | 606751 | 4816595 | 202.61 | 0.02 | Planning Applications | |
| PA-246 | PA-S-R-90 | Removal | Yes | Removed from RNHS - Area developed | 592234 | 4816630 | 991.23 | 0.10 | Planning Applications | |
| PA-247 | PA-S-R-91 | Removal | Yes | Removed from RNHS - Area developed | 590138 | 4816655 | 435.58 | 0.04 | Planning Applications | |
| PA-248 | PA-S-R-92 | Removal | Yes | Removed from RNHS - Area developed | 592178 | 4816566 | 302.02 | 0.03 | Planning Applications | |
| PA-249 | PA-S-R-93 | Removal | Yes | Removed from RNHS - Area developed | 590034 | 4816732 | 154.51 | 0.02 | Planning Applications | |
| PA-250 | PA-S-R-94 | Removal | Yes | Removed from RNHS - Area developed | 603291 | 4816678 | 2879.94 | 0.29 | Planning Applications | |
| PA-251 | PA-S-R-95 | No Change | No | RNHS Unchanged - NS check required | 592888 | 4816777 | 357.07 | 0.04 | Planning Applications | |
| PA-252 | PA-S-R-96 | No Change | No | RNHS Unchanged - NS check required | 589485 | 4816863 | 10280.96 | 1.03 | Planning Applications | |
| PA-253 | PA-S-R-97 | Removal | Yes | Removed from RNHS - Area developed | 603338 | 4817007 | 6602.62 | 0.66 | Planning Applications | |
| PA-254 | PA-S-R-98 | No Change | No | RNHS Unchanged - NS check required | 589301 | 4817108 | 2849.05 | 0.28 | Planning Applications | |
| PA-255 | PA-S-R-99 | No Change | No | RNHS Unchanged - NS check required | 589307 | 4817167 | 418.04 | 0.04 | Planning Applications | |
| PA-256 | PA-S-R-100 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 592701 | 4817214 | 21938.98 | 2.19 | Planning Applications | |
| PA-257 | PA-S-R-101 | Removal | Yes | Removed from RNHS - Area developed | 592398 | 4817537 | 7501.35 | 0.75 | Planning Applications | |
| PA-258 | PA-S-R-102 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593774 | 4819163 | 14283.97 | 1.43 | Planning Applications | |
| PA-259 | PA-S-R-103 | Removal | Yes | Removed from RNHS - Area developed | 594007 | 4819689 | 2147.00 | 0.21 | Planning Applications | |
| PA-260 | PA-S-R-104 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593281 | 4820088 | 6237.34 | 0.62 | Planning Applications | |
| PA-261 | PA-S-R-105 | Removal | Yes | Removed from RNHS - Area developed | 593133 | 4820184 | 700.59 | 0.07 | Planning Applications | |
| PA-262 | PA-S-R-106 | No Change | No | RNHS Unchanged - NS check required | 586577 | 4820495 | 818.34 | 0.08 | Planning Applications | |
| PA-263 | PA-S-R-107 | Removal | Yes | Removed from RNHS - Area developed | 587347 | 4820480 | 3971.55 | 0.40 | Planning Applications | |
| PA-264 | PA-S-R-108 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 587174 | 4820547 | 359.85 | 0.04 | Planning Applications | |
| PA-265 | PA-S-R-109 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 587051 | 4820599 | 1926.93 | 0.19 | Planning Applications | |
| PA-266 | PA-S-R-110 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 586752 | 4820601 | 7748.15 | 0.77 | Planning Applications | |
| PA-267 | PA-S-R-111 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 593925 | 4821636 | 1232.21 | 0.12 | Planning Applications | |
| PA-268 | PA-S-R-112 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 594521 | 4821949 | 3381.79 | 0.34 | Planning Applications | |
| PA-269 | PA-S-R-113 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 594070 | 4822159 | 11717.06 | 1.17 | Planning Applications | |
| PA-270 | PA-S-R-114 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 588245 | 4831872 | 1750.12 | 0.18 | Planning Applications | |

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| PA-271 | PA-S-R-115 | Removal | Yes | Removed from RNHS - Area developed | 588257 | 4831922 | 692.61 | 0.07 | Planning Applications | |
| PA-272 | PA-S-R-116 | Removal | Yes | Removed from RNHS - Area developed | 588483 | 4831953 | 682.28 | 0.07 | Planning Applications | |
| PA-273 | PA-S-R-117 | Removal | Yes | Removed from RNHS - Area developed | 588676 | 4832066 | 2105.49 | 0.21 | Planning Applications | |
| PA-274 | PA-S-R-118 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 588470 | 4832091 | 0.00 | 0.00 | Planning Applications | |
| PA-275 | PA-S-R-119 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 588353 | 4832177 | 5910.20 | 0.59 | Planning Applications | |
| PA-276 | PA-S-R-120 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 584781 | 4831931 | 52320.27 | 5.23 | Planning Applications | |
| PA-277 | PA-S-R-121 | Removal | Yes | Removed from RNHS - Area developed | 587095 | 4835554 | 8.66 | 0.00 | Planning Applications | |
| PA-278 | PA-S-R-122 | Removal | Yes | Removed from RNHS - Area developed | 587060 | 4835551 | 80.84 | 0.01 | Planning Applications | |
| PA-279 | PA-S-R-123 | Removal | Yes | Removed from RNHS - Area developed | 586938 | 4835671 | 82.44 | 0.01 | Planning Applications | |
| PA-280 | PA-S-R-124 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 586834 | 4835711 | 7.45 | 0.00 | Planning Applications | |
| PA-281 | PA-S-R-125 | Removal | Yes | Removed from RNHS - Area developed | 587297 | 4835725 | 19.67 | 0.00 | Planning Applications | |
| PA-282 | PA-S-R-126 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 586679 | 4835765 | 324.96 | 0.03 | Planning Applications | |
| PA-283 | PA-S-R-127 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 587368 | 4835943 | 10323.41 | 1.03 | Planning Applications | |
| PA-284 | PA-S-R-128 | No Change | No | RNHS Unchanged - NS check required | 592929 | 4816786 | 9.77 | 0.00 | Planning Applications | |
| PA-285 | PA-S-R-129 | Removal | Yes | Removed from RNHS - Area developed | 593764 | 4815080 | 11223.71 | 1.12 | Planning Applications | |
| PA-286 | PA-S-R-130 | Removal | Yes | Removed from RNHS - Area developed | 589759 | 4816825 | 8590.58 | 0.86 | Planning Applications | |
| PA-287 | PA-S-R-131 | Removal | Yes | Removed from RNHS - Area developed | 602050 | 4815162 | 3253.79 | 0.33 | Planning Applications | |
| PA-288 | PA-S-R-132 | Removal | Yes | Removed from RNHS - Area developed - NS check required | 594874 | 4804834 | 250.00 | 0.03 | Planning Applications | |
| PA-289 | PA-Z-A-1 | Addition | Yes | Added to RNHS - Creek re-alignment | 593491 | 4815880 | 29372.41 | 2.94 | Planning Applications | |
| PA-290 | PA-Z-A-2 | Addition | Yes | Added to RNHS - Creek re-alignment - Sliver - NS check required | 593315 | 4815468 | 2356.49 | 0.24 | Planning Applications | |
| PA-291 | PA-Z-R-1 | Removal | Yes | Removed from RNHS - Area developed | 593477 | 4815779 | 30233.32 | 3.02 | Planning Applications | Halton Region |
| OMB-4 | OMB-R-1 | No Change | No | Already taken out of RNHS - No changes required | 591588 | 4801325 | 238557.40 | 23.86 | OMB | Paletta 1041 Dundas St OMB Settlement |
| OMB-5 | OMB-R-2 | No Change | No | Already taken out of RNHS - No changes required | 590625 | 4805314 | 26824.57 | 2.68 | OMB | Nelson Extension OMB Settlement |
| OMB-6 | OMB-R-3 | No Change | No | Already taken out of RNHS - No changes required | 587802 | 4810664 | 131456.02 | 13.15 | OMB | Crosswinds OMB Settlement |
| OMB-7 | OMB-R-4 | No Change | No | Already taken out of RNHS - No changes required | 579835 | 4830102 | 49541.38 | 4.95 | OMB | Acton Quarry Ammendment |

| NS_ID | GIS_id | Decision | Change NHS | Comments | X_Coord | Y_Coord | area | ha | type | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| OMB-8 | OMB-R-5 | Removal | Yes | Removed from Greenbelt Area | 594137 | 4803887 | 93660.17 | 9.37 | OMB | Paletta 3075, 3095, 3151 Dundas St OMB Settlement |

# Appendix 3:

# Region-wide Water Resource System Mapping Information

| Table 1: Region-wide Mapping Information Received by Region | | | | | |
|---|---|---|---|---|---|
| Feature | Data Description | Source/ Owner | Type | Date Created | Methodology |
| Watercourses | Streams in Regulation Limit | Digital Orthophotos, FBS, Conservation Halton, GRCA | Arc (GIS) | January 2008 | Not specified |
| | Streams and Creeks | MNR | Arc (GIS) | November 2010 | Not specified |
| Waterbodies | Waterbodies in Regulation Limit | No Source Provided | Polygon (GIS) | No date | Not specified |
| | Waterbodies: natural and man-made | MNR | Polygon (GIS) | February 2011 | Not specified |
| | Waterbodies in regulation limit | CH and Halton Region | Polygon (GIS) | No date | Not specified |
| | Waterbodies in Regulation Limit (Union) | CVC and Halton Region | Polygon (GIS) | No date | Not specified |
| | Waterbodies in Regulation Limit (Union) | GRCA and Halton Region | Polygon (GIS) | No date | Not specified |
| Floodplain | Regulatory Floodplain | GRCA | Polygon (GIS) | No date | Not specified |
| | Floodplains | CH | Polygon (GIS) | February 2003 | Not specified |
| | Engineered floodplain | CVC | Arc (GIS) | 2007 | Not specified |
| | Estimated floodline | CVC | Polygon (GIS) | No date | Not specified |
| | Regulatory Floodplain | GRCA | Polygon (GIS) | 2002 | Not specified |

| | | | | | |
|---|---|---|---|---|---|
| | Floodplains (Union) | CVC and Halton Region | Polygon (GIS) | 2012 | |
| Watersheds | Watersheds | CH | Polygon (GIS) | February 2003 | Not specified |
| | Subwatersheds | CVC | Polygon (GIS) | No date | Not specified |
| | Subwatersheds | GRCA | Polygon (GIS) | 2002 | Not specified |
| Wetlands | Wetlands (Union) | CH and Halton Region | Polygon (GIS) | No date | Not specified |
| | Wetlands (Union) | CVC and Halton Region | Polygon (GIS) | 2016 | Not specified |
| | Wetlands (Union) | GRCA and Halton Region | Polygon (GIS) | No date | Not specified |
| | Wetlands (Not in CA) | MNR and Halton Region | Polygon (GIS) | No date | Not specified |

| Table 2: Region-wide Mapping Information Created by the Project Team | |
|---|---|
| Feature | Data Description |
| Watercourses | Merged Conservation Halton Stream Regulation Limit 30m Buffer designations for Halton Region |
| | Merged Credit Valley Conservation Stream Regulation Limit 30m Buffer designations for Halton Region |
| | Merged Grand River Conservation Authority Stream Regulation Limit 30m Buffer designations for Halton Region |
| Waterbodies | Merged Conservation Halton Waterbody Regulation Limit designations for Halton Region |
| | Merged Credit Valley Conservation Waterbody Regulation Limit designations for Halton Region |
| | Merged Grand River Conservation Authority Waterbody Regulation Limit designations for Halton Region |
| Waterbody Buffers | Merged Conservation Halton Waterbody Regulation Limit 30m Buffer designations for Halton Region |

| | |
|---|---|
| | Merged Credit Valley Conservation Waterbody Regulation Limit 30m Buffer designations for Halton Region |
| | Merged Grand River Conservation Authority Waterbody Regulation Limit 30m Buffer designations for Halton Region |
| Wetlands | Merged Conservation Halton Wetland designations for Halton Region |
| | Merged Credit Valley Conservation Wetland designations for Halton Region |
| | Merged Grand River Conservation Authority Wetland designations for Halton Region |
| Wetland Buffers | Merged Conservation Halton Wetlands 30m Buffer designations for Halton Region |
| | Merged Credit Valley Conservation Wetland 30m Buffer designations for Halton Region |
| | Merged Grand River Conservation Authority Wetland 30m Buffer designations for Halton Region |
| Wetlands not in CA | Merged Wetlands that are not in conservation land designations for Halton Region |
| Wetland Buffers not in CA | Merged 30m Buffer on Wetlands that are not in conservation land designations for Halton Region |

| **Table 3: Assessment Report, Halton Region, Source Protection Area (August 2015)** | | |
|---|---|---|
| **Water Resource Feature** | **Identified in Assessment Report** | **Characterization Methodology and Vintage** |
| Ground Water Features | | |
| Significant surface water contribution areas | Significant Groundwater Recharge Areas | United States Geological Survey's Precipitation-Runoff Modelling System (PRMS) Code<br><br>Map created December 2017 |
| Seepage areas and springs, discharge areas | Not available. Surrogate data:<br><br>Water Table Elevation and Inferred Groundwater Flow | Map created November 2014 |

| Table 3: Assessment Report, Halton Region, Source Protection Area (August 2015) | | |
|---|---|---|
| **Water Resource Feature** | **Identified in Assessment Report** | **Characterization Methodology and Vintage** |
| Significant groundwater recharge areas (ecological and drinking water source) | Significant Groundwater Recharge Areas | United States Geological Survey's Precipitation-Runoff Modelling System (PRMS) Code<br><br>Map created December 2017 |
| Aquifers and unsaturated zones and highly vulnerable aquifers | Highly Vulnerable Aquifers | HVA's: Groundwater intrinsic susceptibility index method (Ministry of the Environment, 2001)<br><br>Map created November 2014 |

| Table 4: Approved Assessment Report, Grand River Source Protection Area (November 2015) | | |
|---|---|---|
| **Water Resource Feature** | **Identified in Assessment Report** | **Characterization Methodology and Vintage** |
| Ground Water Features | | |
| Significant surface water contribution areas | Significant Groundwater Recharge Areas with Vulnerability Scoring | Hydrologic model<br><br>Map created April 2015 |
| Seepage areas and springs, discharge areas | Stream Groundwater Discharge | Calibrated groundwater model (FEFLOW)<br><br>Map created July 2010 |
| Significant groundwater recharge areas (ecological and drinking water source) | Significant Groundwater Recharge Areas with Vulnerability Scoring | Hydrologic model<br><br>Map created April 2015 |
| Aquifers and unsaturated zones and highly vulnerable aquifers | Aquifer Vulnerability<br><br>Highly Vulnerable Aquifers | Technical Rules (2009): Intrinsic Susceptibility Index (ISI), Aquifer Vulnerability Index (AVI), Surface to Well Advective Time (SWAT), Surface to Aquifer Advective Time (SAAT) |

| Table 4: Approved Assessment Report, Grand River Source Protection Area (November 2015) | | |
|---|---|---|
| **Water Resource Feature** | **Identified in Assessment Report** | **Characterization Methodology and Vintage** |
| | | Map(s) created April 2015 |

| Table 5: Approved Updated Assessment Report, Credit Valley Source Protection Area (July 2015) | | |
|---|---|---|
| **Water Resource Feature** | **Identified in Assessment Report** | **Characterization Methodology** |
| Ground Water Features | | |
| Significant surface water contribution areas | Significant Groundwater Recharge Areas | FeFLOW model, Technical Rule (44)(1)<br><br>Map created 2013, Approved July 2015 |
| Seepage areas and springs, discharge areas | Groundwater Discharge | Map created 2010, Approved July 2015 |
| Significant groundwater recharge areas (ecological and drinking water source) | Significant Groundwater Recharge Areas | FeFLOW model, Technical Rule (44)(1)<br><br>Map created 2013, Approved July 2015 |
| Aquifers and unsaturated zones and highly vulnerable aquifers | Highly Vulnerable Aquifers<br><br>Groundwater vulnerability (Regional Model) | Map(s) created 2010, Approved July 2015<br><br>Technical Rules (2009): Intrinsic Susceptibility Index (ISI), Aquifer Vulnerability Index (AVI), Surface to Well Advective Time (SWAT), Surface to Aquifer Advective Time (SAAT) |

# Appendix 4:

# Area Specific Studies- Water Resource System Mapping Information

| 1. Bronte Creek Watershed Study (2002) (Conservation Halton) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | No |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | No |
| Shoreline areas | No |
| Groundwater Features | |
| Significant surface water contribution areas | No |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 2 Data |

| 2. North Shore Watershed Study (2006) (Conservation Halton) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | No |
| Wetlands | No |
| Riparian areas and vegetation protection zones | No |
| Shoreline areas | Yes |
| Groundwater Features | |
| Significant surface water contribution areas | No |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 2 Data |

| 3. Black Creek Subwatershed Study (2009) (Halton Hills) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | Yes |
| Wetlands | Yes |

| 3. Black Creek Subwatershed Study (2009) (Halton Hills) | |
|---|---|
| Riparian areas and vegetation protection zones | No |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | No |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | Yes |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 1 Data |

| 4. Silver Creek Subwatershed Study (2003) (Halton Hills) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | Yes |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | Yes |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | Yes |
| Significant groundwater recharge areas | Yes |
| Aquifers and unsaturated zones and highly vulnerable aquifers | Yes |
| Data Classification: | Class 1 Data |

| 5. DRAFT Premier Gateway Scoped SWS (2018) (Halton Hills) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | Yes |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | Yes |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 1 Data |

| 6. Draft Southwest Georgetown SWS (2017) (Halton Hills) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | N/A |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | Partial |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | Yes |
| Significant groundwater recharge areas | Yes |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 1 Data |

| 7. 401 Corridor Integrated Planning Project, Scoped Subwatershed Plan (2000) (Halton Hills) | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | N/A |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | No |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | Yes |
| Significant groundwater recharge areas | Yes |
| Aquifers and unsaturated zones and highly vulnerable aquifers | Partial |
| Data Classification: | Class 2 Data |

| 8. Indian Creek/ Sixteen Mile Creek Sherway Survey SWS (2004) (Halton Hills) | |
|---|---|
| Key Hydrologic Feature or Area | Viable |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | No |
| Wetlands | No |
| Riparian areas and vegetation protection zones | No |

| **8. Indian Creek/ Sixteen Mile Creek Sherway Survey SWS (2004) (Halton Hills)** | |
|---|---|
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | No |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 2 Data |

| **9. Sixteen Mile Creek Area 2 & 7 SWS (2015) (Milton)** | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | No |
| Wetlands | No |
| Riparian areas and vegetation protection zones | Yes |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 1 Data |

| **10. DRAFT South Milton Urban Expansion Area SWS (2018) (Milton)** | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | N/A |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | Partial |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | HDFs |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |

| **10. DRAFT South Milton Urban Expansion Area SWS (2018) (Milton)** | |
|---|---|
| Data Classification: | Class 1 Data |

| **11. North Oakville Creeks Subwatershed Study (2006) (Oakville)** | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | Yes |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | Yes |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 1 Data |

| **12. Alton Subwatershed Study (1993) (Burlington)** | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | Yes |
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | No |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | Yes |
| Significant groundwater recharge areas | Yes |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Additional: Floodplain | No |
| Data Classification: | Class 2 Data |

| **13. Tremaine and Dundas Secondary Plan Subwatershed Study Update (2018) (Burlington)** | |
|---|---|
| Key Hydrologic Feature or Area | Available |
| Surface Water Features | |
| Watercourses | Yes |
| Waterbodies | Yes |

| **13. Tremaine and Dundas Secondary Plan Subwatershed Study Update (2018) (Burlington)** | |
|---|---|
| Wetlands | Yes |
| Riparian areas and vegetation protection zones | Yes |
| Shoreline areas | N/A |
| Groundwater Features | |
| Significant surface water contribution areas | Yes |
| Seepage areas and springs, discharge areas | No |
| Significant groundwater recharge areas | No |
| Aquifers and unsaturated zones and highly vulnerable aquifers | No |
| Data Classification: | Class 1 Data |

# Memorandum

**To:** **Heather Ireland**

**From:** North-South Environmental Inc.

**Date:** 13 April 2020

**File:** ROPA Phase 2B

**cc:**

**Re:** **Role of ESAs in revised RNHS**

**Historical Context**

From the outset, the Region of Halton has placed a high priority on the protection of its natural environment. This is evident in the first (1978) official plan which had goals and objectives for protecting significant ecological features, as well as policies to achieve those objectives. This high priority is also evident in Council's appointment of an Ecological and Environmental Advisory Committee (EEAC) in 1976 to assist Council and the Planning Department (as it was then known) with development of an official plan. Halton was one of the first regional municipalities to identify and appoint a group of experts to assist in natural heritage planning. Part of EEAC's mandate was the identification of areas that should be protected from development. This was all in response to a recognition of Halton's geographical position and expectation of rapid growth.

The Region was exceptionally fortunate in finding and appointing an extremely knowledgeable and dedicated group of volunteers, who over a two year period developed and executed an organized and rational method for identifying areas in the Region that should be protected and which came to be called "Environmentally Sensitive Areas" (ESAs). Those dedicated individuals and the many experts who collaborated to identify these areas are acknowledged in the Preface and Introductory sections of the 1978 Environmentally Sensitive Areas Study (Regional Municipality of Halton, Ecological & Environmental Advisory Committee and Planning Department, 1978). The introductory sections and the methods section of that report should be read to give a fuller context to the genesis of natural heritage protection in the Region.

There are two concepts in that early work that are important when assessing the current role of the ESAs in the Region's NHS: "an ecosystem approach" and "Regional significance".

Ecosystem Approach: The term "ecosystems approach" has come into popular usage in the last 20 years but was a novel concept for planning in the 1970s. Although not explicitly defined in that report, in simple terms and in the context of planning in Halton, ecosystem approach can be considered to be the protection of earth and life science features, in recognition of the ecological interdependency of geology, landform, soils, water, vegetation and wildlife. An ecosystem approach is evident throughout the approach articulated in the 1978 ESA Report. Thus, for example, one consideration in the development of the criteria for identifying ESAs was:

*"The ecological function of the area contributes significantly to the healthy maintenance of a natural system beyond its boundaries by serving as water storage, recharge, or discharge area, important wildlife migratory stopover or concentration point or a linkage of suitable habitat between natural biological communities."* (1978 ESA Report, page 15)

What is remarkable about this statement from 1978 is not what it explicitly says, but that it implicitly addresses ecosystems by drawing on hydrology, hydrogeology, wildlife and landscape-level linkages, and speaking to functions that extend beyond the boundaries of a feature (i.e. at a landscape scale). It is also noteworthy that 8 years before a systems approach was promoted in Hilts' book "Islands of Green" (Hilts et al. 1986) and some 14 years before the concept of linking areas in a natural heritage system was starting to gain acceptance in Ontario planning, the Region had already contemplated the need to link natural features.

Regional Significance: The second key message to take from the 1978 ESA Report, as well as the Goals, Objectives and Policies of the 1978 Regional Official Plan, is that it was the intent of the Region to not only protect features of Provincial or National significance, but to also protect features that were significant in a Regional context. Thus, another (in fact the first) consideration in the development of ESA criteria was: *"The area represents a distinctive and unusual landform within the Region, Ontario or Canada."* (from the1978 ESA Report, page 15). It is important to note the inclusion of "…*within the Region*…", in the quote above, as this directly speaks to the intent of EEAC, and subsequently Council in approving the ESAs and embedding them in the1978 Official Plan, to include features that were important at the Regional scale.

The concept of Regional Significance was more fully applied in an ESA Update Study undertaken in 1991 (Geomatics International 1991). In particular, to provide greater transparency, defensibility and completeness to the identification of significant earth science features at the Regional level, the principle of "representation" was applied.

Representation has been used extensively in Canada as a fundamental organizing framework for selecting natural features worthy of protection. At a national level, representation is the basis for selecting areas to include in Canada's national parks system (National Parks System Planning Manual, Indian and Northern Affairs, 1974). At the provincial level, it was the underlying principle used in the development of the Province's Site Regions and Site Districts, based on work by Angus Hills in the

1950s (e.g., Hills,1959, 1976). Hills' work was used for the identification of the Site Districts and Site Regions that were used to develop the Provincial Land Use Guidelines that directed Provincial planning in the 1970s, and which survives today as EcoZones, EcoRegions and EcoDistricts which are the fundamental ecological framework used by the Province. EcoRegions are currently used in the PPS to assist in identifying significant communities (see PPS s. 2.1.5) and they are also the basis of the Life Science ANSI program[1], which seeks to identify the representative examples of life features on the basis of EcoDistricts. The goal behind the ANSI program is to eventually identify the best examples of all ecosystems that collectively represent the entire Province. The point in noting this is that representation is a well-accepted and defensible principle that has been used in Canada and the Province for a very long time.

The same principle of representation, and the concept of "Regional Significance" were applied in Halton in the 1991 ESA Update Study (Geomatics 1991) to identify the best examples of the landforms that collectively represent the geology, landform and soils that occur across the entire Region. This was in direct response to the criteria and objectives articulated in the ESA Study and 1978 Regional Official Plan. The purpose of the update study was to improve and strengthen the ESA program in Halton Region through evaluating and refining the criteria and objectives; reviewing the EIA process and reviewing; and updating the biophysical database for the ESA program. Often, the earth science landforms in Halton are coincident with other natural features (valleylands, woodlands, wetlands, etc.), but sometimes they are not. However, the identification of earth and life science features are independent of one another, and each has their own criteria. The Update Study notes, "… *commitment to* [the] *protection of Earth Science Features as a conservation movement lacks the romantic champions and highly visible organizations such as the World Wildlife Fund or Greenpeace, however, these features have inherent values which must be protected, Values associated with Earth Science Features include their role as: 1) records of natural history: 2) bench marks for education and research; 3) prerequisites for ecological diversity; 4) areas for outdoor education; and 5) part of our heritage*." (Davidson 1981 as cited in Geomatics 1991, pg. 32). The Geomatics (1991) report goes on to elucidate those 5 values and most importantly, describes a framework for determining representative earth science features in the Region. The report also recommended a series of objectives to assist in the evaluation of impacts to ESAs. One of those objectives was:

"*V) Preserve examples of original, characteristic landscapes that contain representative examples of bedrock, surface landforms, soils, vegetation and fauna, and the processes that occur within and between them*;" (Geomatics 1991, pg. 39)

The protection of biotic features (woodlands, wetlands, valleylands) is generally better recognized and more easily accepted than earth science features. Biotic features are thoroughly articulated in the PPS; the earth science features less so. However, the original Halton Official Plan policies (1978) and ESA Report (1978) intended to recognize and include for protection complete representation of earth science

[1] Representation of Earth Science ANSIs are based on a Framework Study that characterized the Province's earth science history. It is event and process based (Davidson 1981, recently supplanted by an updated version from Webster 2019).

features that represented the Region's Landscapes as part of an ecosystem approach, including those that did not co-occur with other features. This was re-affirmed through the update study which resulted in the identification of several new ESAs based on earth science representation. It is noteworthy that the ESA Update Study is referenced in the 2006 ROP as the authority to use for the identification of ESAs (2006 ROP, s.121).

The Region's commitment to protecting both life and earth sciences in an ecosystem approach was re-affirmed in the first ROP review. Report B4, Land Stewardship and Healthy Communities: A Vision for the 90's and Beyond (Region of Halton 1991), which was a background report prepared for that ROPR, articulates "A Value System for Halton" (section 3.0) which poses significant questions about planning in Halton. One such question is: "… what would we like to see as Halton's remaining prominent land forms[2] in 50 years, 100 years and in 500 years?" (pg. 10). It goes on to propose a list of "Land Form Permanence" that included:

- Niagara Escarpment
- Environmentally Sensitive Areas (ESA's) [which included earth and life science features]; and
- Streams, Valley Lands, Wetlands and Groundwater Recharge Areas.

The B4 report further proposes that these be viewed as "… truly permanent features in Halton's landscape – they should be maintained in their current form and extent with no displacement or encroachment." (pg. 10). Based on the acceptance of the vision proposed in the B4 Report, the concept of permanent landforms was embraced in the 2006 Official Plan (note the term "land form" was combined to "landform" in the 2006 ROP). Halton's Planning Vision in that Plan stated, "To maintain *Halton* as a desirable and identifiable place for this and future generations, certain landforms within *Halton* must be preserved permanently. This concept of **landform permanence** represents *Halton's* fundamental value in land use planning and will guide its decisions and actions on proposed land use changes accordingly." (ROP 2006, Part II, s. 26).

The same wording is provided in the current, in force, ROP (ROP 2009, s.26) that resulted from ROPA 38, with the exception that "landform" became "landscape" thus clarifying that the former term meant something more than just surficial features. It is noteworthy that although the 2006 ROP did not explicitly list the ESAs as in the previous ROP, it did specifically indicate that the ESAs to be protected were those listed in the "Environmentally Sensitive Area Study Addendum Report (September 1991)" which is the Geomatics (1991) report referred to above and which included the additional ESAs (including Drumquin Woods). Also, the ESAs were identified on Map1 of the ROP.

Summary

There is a clear and consistent affirmation of the Region's desire to protect not just life science features, but to also protect earth science features within entire landscapes, largely through preserving ESAs as

[2] "Land Form" in this context did not refer to "landforms" as in surface features such as valleys, drumlins, eskers, etc. but to the total landscape including soil, water, surface features, vegetation and wildlife. The term was later changed to "landscape" in ROPA 38.

identified in the original 1978 ESA study and subsequent update studies. Inherent in this is the intent to protect areas that are of Regional significance. The maintenance of Halton as an "identifiable place" in the Visions of the 2006 and current ROPs speaks to recognition of the uniqueness of Halton and the desire to maintain its distinctiveness. This was largely to be achieved through adherence to protecting permanent landscapes.

**The Current Regional Official Plan Review**

The Regional Municipality of Halton is currently undertaking a Regional Official Plan Review (ROPR) in accordance with Provincial requirements established in Section 26 of the Planning Act. As part of this review, the 2009 NHS maps (Maps 1 and 1G) and associated policies should be reviewed to provide greater clarity and consistency in the identification of the Region's Natural Heritage System. The original criteria and objectives of the ESA program were not explicitly carried through into the current ROP, nor were ESAs listed as components of the RNHS (s. 115.3), although they were implicitly included through the inclusion of ESAs in the mapping of the RNHS. Most of the ESAs are included in the of the Region's NHS, as they are also significant woodlands, wetlands, significant valleylands or other components (i.e., linkages, enhancements). However, there are some ESAs that are not included in the components of the RNHS, in particular some Earth Science ESAs. It is these latter features that are becoming an issue that needs addressing.

The absence of policies in the current ROP that specifically identify the ESAs and provide guidance on their protection, creates a void that has resulted in some confusion about their role in the RNHS. As part of the current ROPA it would be appropriate to clarify the role of the ESAs in the Region's NHS.

<u>Solutions to address the role of ESAs in the Regional NHS</u>

We suggest that there are three options to address ESAs in the ROP:

Option 1: Leave the policy/mapping structure as it is currently;
Option 2: Revise the components of the RNHS listed in s. 115.3 to include ESAs; or
Option 3: Exclude the ESAs from the RNHS and delete them from the mapping.

Option 1: This option appears unacceptable as it will perpetuate the current confusion. It is not a transparent approach as the RNHS mapping in the ROP includes the ESAs but they are not recognized as components of the RNHS in policy.

Option 2: This would add clarity in that by listing ESAs as components in the RNHS the Region's intent would be clear. This would also be consistent with the intent of the reports and Regional Official Plan policies that have addressed the protection of natural heritage in the Region since the first ROP. It is the option that is most consistent with the current goal of the Region's NHS (s.114) and objectives 114.1(5) and 114.1(13). We suggest that if this option is selected, there be policies developed that specifically address what land uses can occur in ESAs that are only designated based on Regional earth science features, as there is the potential for greater flexibility than with Life Science features. Lastly, it is worth

noting that because of the general lack of appreciation of the value and role of earth science features, their continued inclusion may not be as easily accepted as life science features.

Option 3: This option would represent a departure from the approach that has been taken in the past. It would bring the mapping into conformity with the current policies identifying the RNHS, but would diminish the completeness of the ecosystem approach that is a hallmark of the Region's NHS. It is less consistent with the goal of the Natural Heritage System (ROP s. 114) which seeks to "… increase the certainty that the biological diversity and ecological functions within Halton will be preserved and enhanced for future generations." Also, depending on the determination of "significance" (which would need to be done on a case by case basis), it is less consistent with the current ROP objective 114.1(5), which addresses the protection of features, including "significant landforms of Halton". Likewise, subject to the determination of "significance", it is less consistent with Objective 114.1(13), which seeks, "To preserve examples of the landscape that display significant earth science features and their associated processes." It should be kept in mind that any earth science features that are of Provincial significance are captured through existing policy (115.3(1)g), but these to not capture representation at the Regional level, and thus do not contribute to protecting permanent "Halton" landscapes or maintaining the identify of Halton.

The key question in determining which of the three options is best for the Region is, "How important is it to include representation of earth science features that are only of Regional (i.e., Halton) Significance?" In answering this, there needs to be consideration of the Vision, in particular the desire to retain Halton as an identifiable place, and to preserve permanent landscapes. This is a value-based decision, not a decision based in science. In our opinion, if the regional earth science features were excluded, the RNHS would still be a "systems-based approach", it would simply be diminished by their exclusion.

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# Review of the Halton Regional Official Plan

## Mapping Audit Technical Memo

### Figure 1: Growth Plan NHS and Halton's NHS

**Legend**

- Growth Plan for the Greater Golden Horseshoe
- Halton's NHS
- Regional Municipality of Halton

N
W E
S

0 1 2 4 6 8 10 12
Kilometers

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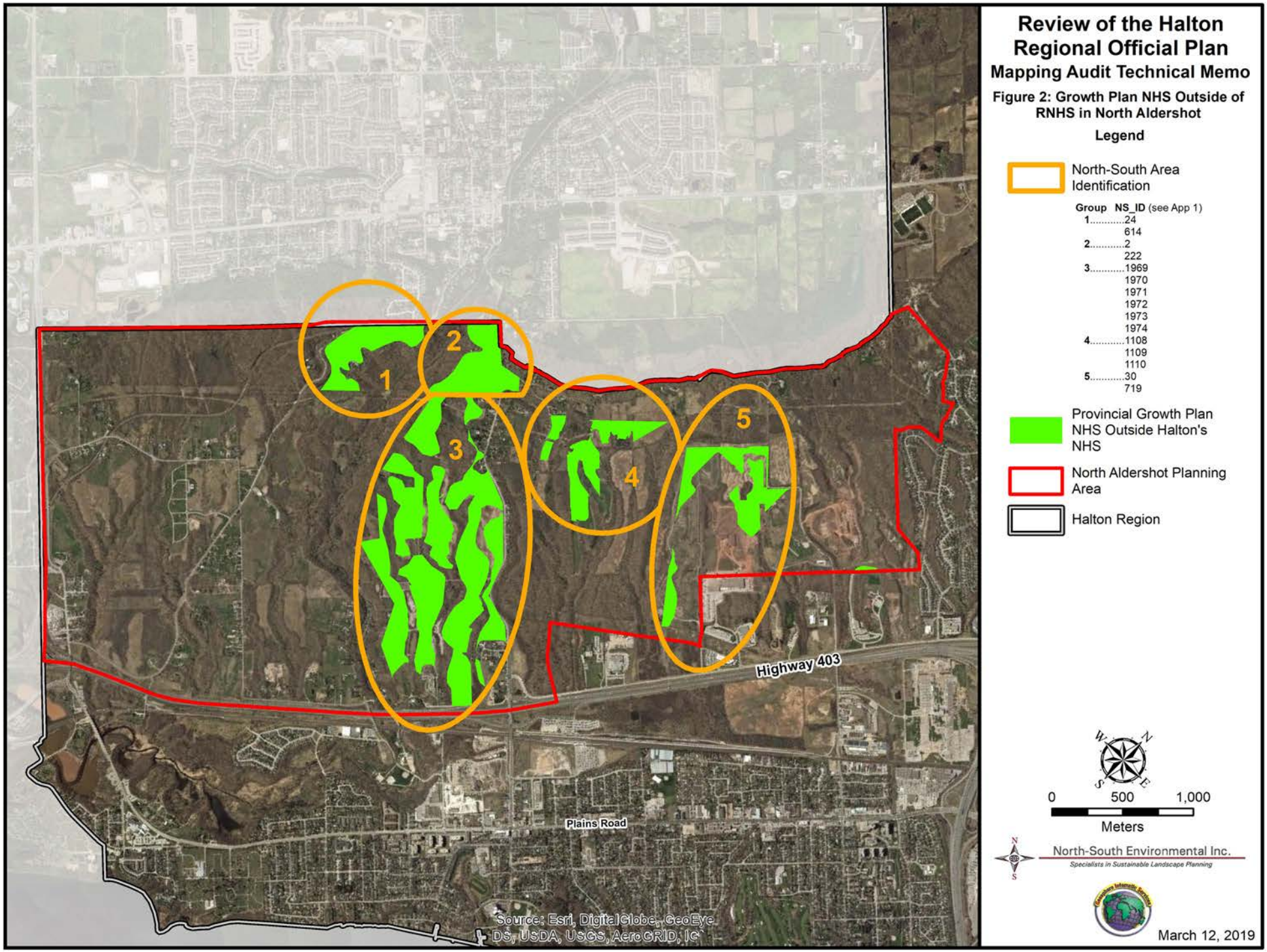
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

# Review of the Halton Regional Official Plan

## Mapping Audit Technical Memo

**Figure 2: Growth Plan NHS Outside of RNHS in North Aldershot**




**Legend**

North-South Area Identification

| Group | NS_ID (see App 1) |
|---|---|
| 1 | 24 |
| | 614 |
| 2 | 2 |
| | 222 |
| 3 | 1969 |
| | 1970 |
| | 1971 |
| | 1972 |
| | 1973 |
| | 1974 |
| 4 | 1108 |
| | 1109 |
| | 1110 |
| 5 | 30 |
| | 719 |

Provincial Growth Plan NHS Outside Halton's NHS

North Aldershot Planning Area

Halton Region

0 500 1,000

Meters

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# Review of the Halton Regional Official Plan

## Mapping Audit Technical Memo

### Figure 3: Areas in North Aldershot with Potential Refinements to RNHS

**Legend**

- Potential Refinement Areas
  - **1** - Area East of Bridgeview Valley
  - **2** - Fork in Bridgeview Valley
  - **3** - Watercourse in Cemetary
  - **4** - Former Regional Landfill and Bayview Park
- North Aldershot Policy Area
- NEC Escarpment Protection Area
- NEC Escarpment Natural Area
- Greenbelt Plan
- Growth Plan NHS
- Mineral Resource Extraction Area
- Urban Areas
- Regional Natural Heritage System
- North Aldershot Planning Area - Approximate
- Halton Region

0 250 500 1,000
Meters

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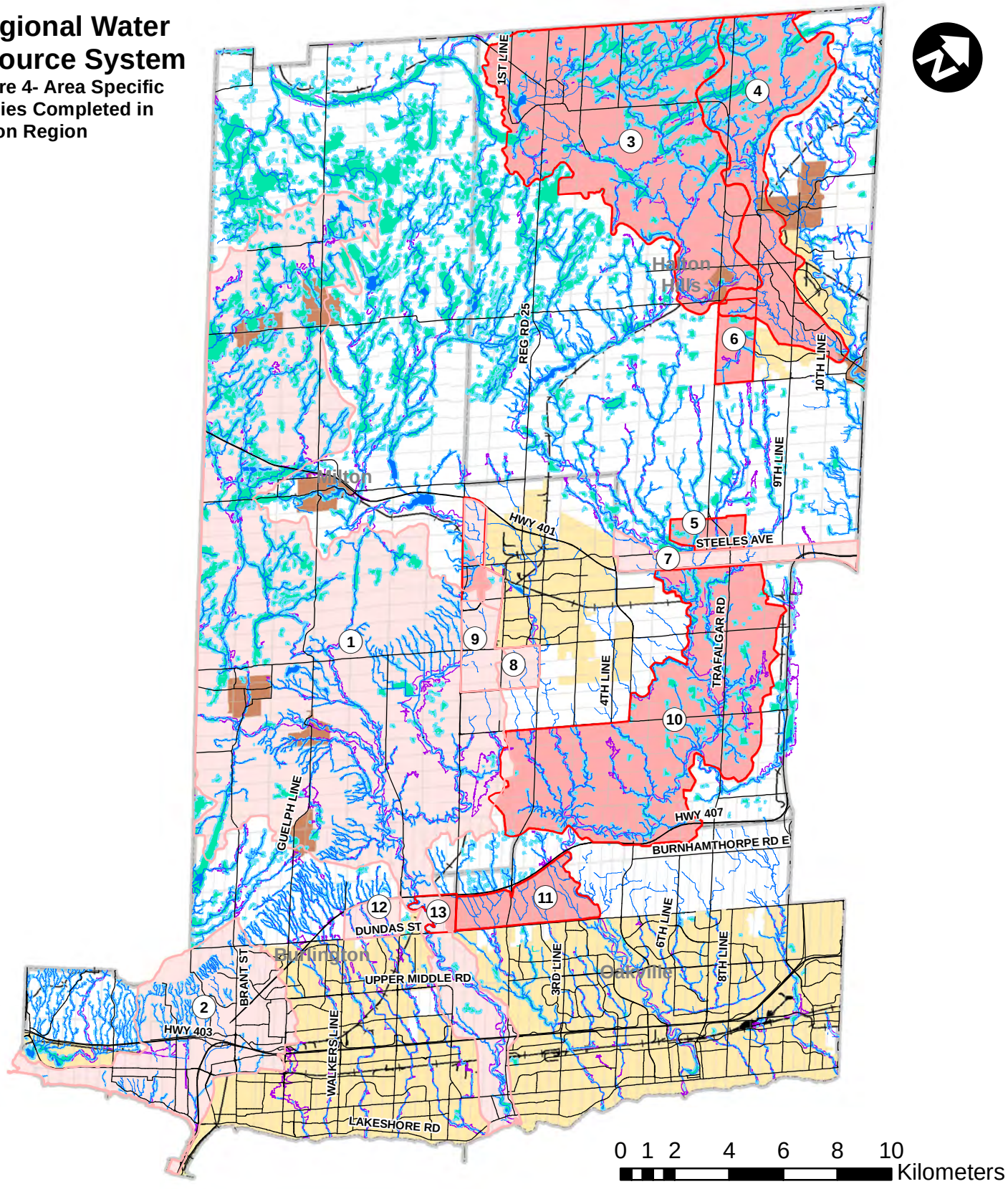
Source: Esri, DigitalGlobe, GeoEye, Earthstar Community

# Regional Water Resource System

**Figure 4- Area Specific Studies Completed in Halton Region**




## Legend

- Watercourse
- Waterbody
- Wetland
- Riparian Areas and Vegetation Protection Zones
- Floodplain
- Rail Line
- Major Road
- Lot and Concession Line
- Municipal Boundary
- Urban Area
- Hamlet

**Data Class**

- Class 1
- Class 2

## Watershed and Subwatershed Studies

1 - Bronte Creek Watershed Study (2004)
2 - North Shore Watershed Study (2006)
3 - Black Creek Subwatershed Study (Phase1 - 3) (2009)
4 - Silver Creek Subwatershed Study (2010)
5 - Premier Gateway Scoped Subwatershed Study (2018)
6 - Draft Vision Georgetown Subwatershed Study (2017)
7 - 401 Corridor Integrated Planning Project, Scoped Subwatershed Plan (2000)
8 - Indian Creek/Sixteen Mile Creek Sherwood Survey Subwatershed Management Study (2004)
9 - Sixteen Mile Creek, Areas 2 & 7 Subwatershed Study (2018)
10 - South Milton Urban Expanson Area Subwatershed Study (2018)
11 - North Oakville Creeks Subwatershed Study (2006)
12 - Sheldon Creek Watershed Master Plan (1993)
13 - Tremaine and Dundas Subwatershed Study Update (May 2018)